A COMPARATIVE ANALYSIS OF THREE EXPLANATORY MODELS OF MENTAL DISORDER AND A PREFERRED FOCUS OF EXPLANATION

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ABSTRACT

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Current explanations of mental disorder center on the psychoanalytic and the behavioral models, and a model derived from General Systems Theory (GST). The psychoanalytic and the behavioral models are based on several causal assumptions which bias the models in favor of isolated analytic foci (the individual or the environment) and units of analysis (the individual). Consequently, attempts by their proponents to come to grips with the interaction between the individual and a (social) context demands a good deal of theoretical elaboration. In contrast, the GST model is based on a different set of causal assumptions which bias it in favor of an interactional analytic focus and unit of analysis (the family system). Consequently, attempts by its proponents to come to grips with the interaction between the individual and a (social) context requires relatively little theoretical elaboration. On the assumption that it is wise to hold theoretical elaboration to a minimum, (a) the GST model is preferred over either alternative model, (b) the interaction between the individual and a (social) context is preferred over either the individual or the environment alone as an analytic focus, and (c) the family system is preferred over the individual as a unit of analysis. The latter two interactional concepts, (b) and (c), together represent a preferred focus

of explanation in the study of mental disorder. Further analysis of family systems research in mental disorder reveals that while families exhibit systemic properties, patterns of family interaction have yet to be identified which consistently distinguish between different family types; research findings are variable and inconsistent. This lack of consistency of results among reviewed studies may be explained by a number of identified methodological and theoretical factors. As part of the conclusion, GST and traditional perspectives of mental disorder are briefly compared on the basis of their range and fruitfulness.

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Chapter 1

Introduction

A. A Preferred Focus of Explanation

Mental disorder has received systematic study now for over seventy-five years. During that interval, methods of data collection have steadily improved; we now have more and better data concerning mental disorder than ever before. Despite these data, however, our understanding of the phenomenon remains poor (Scheff, 1966: 9; Braginsky et al., 1969: 27).

This paradox has generated a great deal of debate, much of it quite properly directed at existing explanatory models, three of which will be examined in this thesis: the psychoanalytic, the behavioral, and most recently, the General Systems Theory (GST) models.

Listed in this way, it appears as though the three models are distinctly different from each other. Such an impression is supported by the language used by proponents of the various models, one speaking in terms of psychic structures, another in terms of behaviors, while the third speaks of systems. Upon closer examination, however, we find that the psychoanalytic and the behavioral models share a similar view of mental disorder and it is only the movement from these models to the GST model which involves a radical shift in perspective.

Proponents of the psychoanalytic model conceive of mental disorder within a medical framework, as an in-dwelling property

of individuals (Milton and Wahler, 1969; Ausabel, 1970; Ellis, 1967). Proponents of the behavioral model, while eschewing the medical model with its attendant notion of 'abnormal behavior', similarly conceive of mental disorder as learned maladaptive behavior (Skinner, 1967; Ullmann and Krasner, 1967, 1969: 92-93) presupposing the objective specifiability of the adaptive-nonadaptive distinction. In sharp contrast with both of these models, proponents of GST view mental disorder in a metaphorical sense. The designation of certain behavior as "disordered" is entirely arbitrary, dependent upon the context in which it occurs, the intent of the observer (i.e. clinical versus research interests) and the way in which the sequence is "punctuated" (cf. Bateson, 1972: 292) (Sarbin, 1970; Adams, 1964; Szasz, 1970; Scheff, 1969, 1975).

This important distinction between the models has played an insignificant role in the on-going debate surrounding them. Proponents of the psychoanalytic model continue to assert that it provides the best available explanation of mental disorder (see Brenner, 1974: 241-242) while proponents of the behavioral and GST models make similar claims.

From this perspective, the attempt to choose among these explanatory models on substantive grounds alone would appear to be unfruitful. However debatable, features such as symptom substitution (behavioral model), the importance assigned to individual differences (psychoanalytic model), the role of

"mental constructs" (behavioral model), and so on, while important in and of themselves, do not provide adequate grounds upon which to choose among these models because they share two overriding attributes.

The first attribute is that of comprehensivity. Proponents of each model are able to explain all aspects of mental disorder which are important. For proponents of the psychoanalytic and the behavioral models, the individual alone is an ontological reality: groups are merely seen as aggregations of individuals[1]; they do not exist as basic units in their explanations. Mental disorder is explained in terms of individual processes and/or behaviors. Proponents of the GST model, however, assign to neither the individual nor the group the status of ontological reality; both are abstractions, arbitrarily designated (Wynne, 1972: 89).[2] What is important for proponents of the GST model is that whatever unit is chosen be seen in relation to a larger system of which it is a part. The emphasis here is on explanation in terms of the interaction between parts of a whole rather than on the parts per se. Proponents of the GST model therefore explain mental disorder in terms of the interaction between and within systems, of which one type of system, the family system, has received a great deal of attention.[3]

The second attribute shared by the models in question is that of non-falsifiability. Each of the models comprises

a number of fundamental concepts (e.g. the psychoanalytic idea of psychic energy, the behavioral notion of reinforcement, the GST concept of system)[4] formulated at such a level of abstraction and generality that they are not subject to empirical falsification. Furthermore these and other notions are typically presented by proponents of the models as "hypotheses". In fact, they are essentially postulates. Such a strategy has a twofold pay-off: it allows proponents of the models in question to proclaim their objectivity and awareness of scientific rules of evidence while at the same time remaining insulated from the consequences of considering empirical data; for postulates are, by definition, non-falsifiable.[5]

For these reasons debate on a substantive level will not provide grounds upon which to choose among existing models. However, in view of the current state of our knowledge, the need to make such a choice is becoming ever more urgent. Although they are similar in some respects, each of the models in question has different premises, recommends different data collection methods, assumes different ontological realities and offers quite different interpretations of available data.[6] Consequently they implicitly direct the course of future research in quite different directions. If future research on mental disorder is to be more fruitful than that which has preceded it, we must choose a preferred model now to act as

a clear and consistent guide to future scientific efforts in this area. The attempt to develop grounds upon which to make such a choice appears to require analysis of issues at a more fundamental conceptual level than has hitherto often been the case.

In this thesis I will propose one basis for such a choice in terms of a preferred focus of explanation.

The notion of 'focus of explanation' is complex, involving a set of concepts seen at two different levels of abstraction simultaneously. On one level, attempts to explain mental disorder may focus either on the individual, the environment or on the interaction between the individual and a context. At this level concepts are used in an abstract, generic sense and will henceforth be referred to as analytic foci.

These analytic foci, refer also to objects and events in the empirical world. Thus in any actual study of mental disorder, one is constrained to deal with either individuals or groups as untis of analysis. If one chooses to use either the individual or the environment as an analytic focus, one is constrained in the conduct of empirical research to study individuals one at a time.[7] The individual is thus the unit of study. On the other hand, if one chooses to use the interaction between the individual and a context as an analytic focus, one is constrained (at least with respect to mental disorder) to study the context with which the individual interacts and of which he is a part. With respect to mental disorder, "context" (group)

generally refers to significant others with whom the individual comes in regular and intimate contact, typically his immediate family members (see ftn. 3). The family system is thus the unit of study.

To distinguish the individual or the family system from their more abstract counterparts, individuals and families at the empirical level will henceforth be referred to as "units of analysis". At a more abstract level they bear the label "analytic foci". It is important to bear in mind that both concepts are used for the same explanatory purpose, but represent two different levels of abstraction. Thus the development of grounds for preferring one analytic focus over another simultaneously provides logical grounds for preferring one unit of analysis over another.

This distinction between concepts at different levels of abstraction is extremely important in the evaluation of different explanations of mental disorder. The explanatory models in question each employ different analytic foci and correspondingly different units of analysis. Proponents of the psychoanalytic and the behavioral models, for example, employ the individual and the environment as their analytic focus, respectively, and individuals are their units of analysis. Proponents of the GST model, however, employ the interaction between the individual and a context as their analytic focus and, as regards mental disorder, tend to use

the family system as their unit of analysis. To choose among these explanatory models of mental disorder therefore entails choosing among analytic foci and units of analysis. To develop theoretical grounds for making such choices is the primary aim of this thesis.

In recent years, data have been accumulated with respect to those concepts here designated as analytic foci. In chapter 2, selected portions of this literature either directly or indirectly relevant to mental disorder are reviewed. The interaction between the individual and a context, especially a social context, is seen to be important in the explanation of mental disorder.

In view of the importance of this interaction, chapters 3 and 4 assess the extent to which the three models presented are compatible with it. I examine several of the basic assumptions underlying these models which are used to explain either mental disorder in general or a specific diagnostic category of disorder.

Both the psychoanalytic and the behavioral models share the causal assumptions of linearity, unidirectionality and summativity which hold that it is, in principle, possible to isolate "lines" of causality such that natural phenomena are explained in terms of causal chains; that within such chains, the direction of effect necessarily proceeds from cause to effect and not vice versa; and that the final (proximate)

effect is the sum of the antecedent causes (i.e. like causes have like effects). In short, these assumptions commit the proponents of the psychoanalytic and the behavioral models to explain mental disorder in terms of strict (micro)determinism, an orientation which biases them toward one or another analytic focus (i.e. the individual or the environment, respectively) and explains their logical commitment to the individual as their unit of analysis. Consequently their attempts to come to grips with the interaction between the individual and a context requires a good deal of theoretical elaboration.

In contrast, the GST model is based on assumptions of nonlinearity, bi-directionality and non-summativity. Briefly, these GST assumptions hold that it is, in principle, impossible to isolate causal chains, that natural phenomena are "caused" by the interaction of multiple causes and multiple effects; furthermore, that within such causal networks, the direction of effect is most likely reciprocal such that the effect of cause A identified as B, reverberates back into A, and so on; and that, in the course of interaction between networks of causes and effects, natural phenomena are likely to exhibit new and qualitatively different properties at different levels of complexity, such that there need be no direct relationship between antecedent causes and final effects (i.e. like causes have unlike effects).

Such assumptions require proponents of the GST model to explain mental disorder in terms of probability or macro-determinacy. Such proponents are biased toward the interaction between the individual and a context as their analytic focus and, with respect to mental disorder, generally prefer the family system as their unit of analysis. Consequently, their attempts to deal with this interaction involve relatively little theoretical elaboration.

On the assumption that it is wise to hold theoretical elaboration to a minimum, I argue that the GST model is to be preferred over either the psychoanalytic or the behavioral models. Consistent with this choice of explanatory model, the interaction between the individual and a context will be the preferred analytic focus and the family system will be the preferred unit of analysis in the study of mental disorder.

I will then, in chapters 5, carry my analysis one step further. By examining selected portions of the mental disorder literature which have employed the family system as their unit of analysis, I seek to determine the extent to which the stated goals of this approach have been realized. This review reveals that the literature presents several unresolved problems. My analysis continues in chapter 6, where I delineate several factors, both theoretical and methodological, which explain the existence of these problems.

Finally, as part of my conclusion in chapter 7, I argue that in terms of both range and fruitfulness the GST perspective of mental disorder which involves a notion of social interaction is preferred over its traditional counterpart which involves a notion of social isolation.

FOOTNOTES

1. A similar view of the group is found in the sociological literature under what Warringer (1962) has called the "orientations of nominalism, neo-nominalism, and interactionism". This view is embodied in the following four interrelated propositions:

    1. "We can see persons, but we cannot see groups by observing persons."
    2. "Groups are composed of persons."
    3. "Social phenomena have their reality only in persons, this is the only possible location of such phenomena."
    4. "The purpose for studying groups is to facilitate explanations and predictions of individual behavior." (Warringer, 1962: 34).

    Warringer argues that these propositions are either fallacious or misconceptualized.

2. A similar view of the individual and the group is found in the sociological literature under what Warringer (1962) has called the "orientation of realism".

3. It is important to bear in mind here that proponents of the GST model do not give theoretical priority to the family system over the individual (as system). Both are regarded by proponents of the model as arbitrary, abstract designations which are useful

depending upon one's research interests. The tendency on the part of GST proponents to place greater emphasis on the study of family systems as opposed to individuals (at least with respect to mental disorder) is derived from their concern with explaining the phenomenon in terms of the interaction between system components and from the fact, that given this set of research interests, the family systems seem to be the most useful for this purpose.

4. These notions will receive detailed examination in chapters 3 and 4.

5. These models are accorded further protection from falsifiability by the variation in what they regard as evidence. For proponents of the psychoanalytic model, evidence consists of pattern similarity between the past and the present. For proponents of the behavioral model, evidence consists of what may be called a "coefficient of contingency". For proponents of the GST model, evidence consists of reduced variability and increased homogeneity, both between and within different natural phenomenon. Thus what is evidence for the proponents of one model cannot be used to falsify another, and so on. The various answers proponents of these models give to the question "what is evidence?" operates to insulate them from

empirical evidence which may or may not contradict the assertions embodied in the various models.

Another source of insulation from empirical falsifiability comes from confusion of concepts and variables. Only variables are measurable and thus only models whose conceptual components can be expressed in terms of variables are falsifiable. The models in question are therefore interesting insofar as they contain a surfeit of concepts and a dearth of variables.

6. These models are different too in the way in which their proponents use time span to make inferences (N. Bell, personal communication). Proponents of the psychoanalytic model tend to employ a large time span in order to make high level inferences. Proponents of the behavioral model use a very short time span in order to make low level inferences. Finally, proponents of the GST model are flexible with respect to these issues and are quite willing to use either short or long time spans to make either high or low level inferences, depending on the research question at hand.

7. This does not preclude the study of groups. It means merely that the group is examined in terms of its effect on its individual members. Since a group is regarded as an aggregate of individuals, it is

quite reasonable to examine the effect of the group on each of its constituent members in turn until the entire group has been covered. Such an approach, however, is necessarily poorly equipped to deal with group interactional processes.

Chapter 2

Mental Disorder and the Interaction Between the Individual and a Context

A. Introduction

Explanations of mental disorder must rely on a limited number of analytic foci, namely, the individual, the environment or the interaction between the individual and a context. These concepts are used in an abstract, generic sense as explained by Chien (1972:25-26) speaking about behavior per se,

> "In the prevailing view, organism interacts with environment, and the outcome of the interaction is the response. Either or both may be changed in the process, but the next response is again an outcome of an organism distinct from but interacting with a distinct environment. That is, in the prevailing view, everyone of the determinants of the response is contained in the organism or the environment. By contrast, the interaction I am discussing, which I say affects the outcome of other interactions between the organism and environment, is not distinctly an organismic nor an environmental fact. When it becomes a condition of mediating interactions (note well, not succeeding interactions, but mediating interactions that determine the course of the primary interaction that is still ongoing while the mediating interaction occurs), we are dealing with a new class of determinants of behavior." (parenthesis in original).

In short, with respect to mental disorder, the analytic foci in question, namely, the individual, the environment and the

interaction between an individual and a context, refer to distinctly different classes of determinants of behavior (i.e. psychological, environmental, interactional) and any one of these foci may be used to explain behavior labelled "disordered".

The importance of the individual or the environment as an analytic focus in the explanation of mental disorder has long been recognized (although the issue of whether one of these foci is more important than another remains controversial). Only in recent years, however, has the potential importance of interaction between the individual and a context come into prominence and a large, diversified literature about it has slowly accumulated. The present chapter reviews selected portions of the research literature and assesses the importance of this interactional focus for an explanation of mental disorder.

B. Review of the Literature

1.0 Introduction

From a traditional perspective, mental disorder involves a disturbance of the mental processes. These mental processes are said, somewhat arbitrarily, to subsume six basic activities: thinking or cognition, consciousness, orientation, memory, perception and affect (Linn, 1967), each of which may exhibit characteristic disturbances.

Thinking involves judgment, meaning and reasoning, and is

thought to consist of "a goal-directed flow of ideas, symbols and associations initiated by a problem or task and leading to a reality-oriented conclusion." (Linn, 1967:547). The operation of such processes are typically signalled through the use of language. Cognition may be disturbed in form (e.g. dereism, autism), in stream (e.g. neologism, blocking), and in content (e.g. phobias, obsession, delusions).

Consciousness is generally defined as "synonymous with the quality of being aware and having knowledge.... Implicit in the concept is the capacity to understand information and use it effectively to influence the relationship of the self to the environment." (Linn, 1967:556). Consciousness may be disturbed in a number of ways, among them disturbance in the level of consciousness, in attention, in apperception and in suggestibility.

Orientation is defined as the "ability to recognize one's surroundings and their temporal and spacial relationship to oneself or to appreciate one's relationship to the social environment." (Linn, 1967:559). Disturbance of this activity involves disorientation of time, of place and of person.

Memory is based on three interrelated processes: the ability to record experienced events in the Central Nervous System, the persistence of registered experience (retention) and the ability to bring these stored experiences back into consciousness (recall). Each of these processes may become

disturbed.

Perception, in a broad sense, is defined as an "awareness of objects, qualities or relations that follow stimulation of peripheral sense organs, as distinct from the awareness that results from memory."(Linn, 1967:564). There are as many categories of perceived data as there are types of end organ (i.e. visual, auditory, olfactory, gustatory, tactile, and kinesthetic). Disturbance of perception includes hypochondriasis, illusions and hallucinations.

Finally, affect is defined as "the feeling tone, pleasurable or unpleasurable, that accompanies an idea." (Linn, 1967:567). It includes such feelings as anger, sadness and joy. Two examples of the disturbance of affect are anxiety and depression.

With these facts concerning the mental processes as background, in what follows, five substantive areas related to mental disorder will be briefly reviewed: perception (visual), memory, cognition, language and a portion of the mental disorder literature itself, specifically dealing with two diagnostic categories, schizophrenia and paranoia.

1.1 Perception (Visual). Disturbance of the perceptual processes is one aspect of mental disorder. Such disturbances, as mentioned above, may include hypochondriasis, illusions and hallucinations (Linn, 1967). Indeed, with respect to schizophrenia, a voluminous literature has been accumulated

apparently based on the premise that disturbed perceptual processes are a fundamental aspect of schizophrenia per se (e.g. Shakow, 1963; McReynolds, 1960). An awareness of the perceptual processes is essential to an understanding of much current thought concerning mental disorder.

Perception involves the input and storage of sensory data in higher neural centers in the brain. This ostensibly simple and automatic process in fact appears to be a complex function of the stimuli perceived, of the activity, experience and orientation of the perceiving individual, and of the context in which the activity is performed.

Thus, with respect to visual perception, not only can two people who have the same retinal image perceive different things, but two people who have a different retinal image can perceive the same thing.

Empirical support for the foregoing statement comes from a series of experiments on the effect of subject expectancy on perception. For example, Bruner and Postman (1949) report tht a sample of individuals was asked to identify playing cards by suit and denomination, presented tachistoscopically. Unknown to them, however, some of the cards were made anomalous (e.g. a black six of hearts). While some of the subjects were able to correctly identify the anomalous cards after several trials, some ten per cent of the subjects were

unable to do so, despite the fact that their final exposure time was forty times greater than their initial exposure time. Similar findings have been reported with respect to size (Hastorf, 1950) and colour perception (Bruner et al., 1951; see also Postman et al., 1948; J. Bruner, 1957a, b).

A related set of experiments was reported by Ames (1955). One of these involved two partially inflated balloons illuminated from a concealed source. Both balloons were in a fixed position and approximately one foot apart. Their relative size and illumination could be controlled. When their size and brightness were identical, a subject looking at them from eye level ten feet away saw two glowing spheres at equal distance from him. However, if the brightness of each balloon was equal while relative size was different, the larger balloon appeared to be nearer the subject than the smaller one. When relative size was altered continuously, the balloons appeared to move back and forth in a dramatic way. Similar results were achieved by holding size constant and varying brightness.

These and similar experiments cannot easily be explained solely in terms of either the environmental stimuli or of individual past experience with such stimuli. On the one hand, the individuals' perception bears little resemblance to reality. On the other hand, it involves active (rather than reactive) processes wherein the individual "relates to the

stimuli pattern a complex probability-like integration of his past experience with such patterns." (Ittleson and Kirkpatrick, 1951). Perception, Ittelson and Kirkpatrick (1951) conclude appears to be a "functional affair based on action, experience and probability. The thing perceived is an inseparable part of the function of perceiving, which in turn includes all aspects of the total process of living." (see also Ittelson and Cantril, 1954).[1]

Further support for this conclusion is provided by studies of human perceptual adaptation. Initial work in this area was conducted by Stratton (1897) who himself wore inverting lenses for eight consecutive days as he continued his normal activity. He reports that at the end of that time period he had completely adapted himself to the lenses and saw the world normally despite the fact that his retinal image remained inverted.

Stratton's findings have since been confirmed by the recent, systematic work of Erismann and Kohler (Kohler, 1962). They reported that all subjects who wore inverting lenses while continuing to move about in their environment came to see the world normally.[2]

The implication of these findings, that the perceptual adaptation of subjects required the subject to make active corrective movements, has been confirmed empirically. Ewert (1930) and Peterson (1938) both report that subjects

who wore the experimental lenses but were not permitted to physically interact with their environment did not exhibit complete perceptual adaptation. They were able to perform certain tasks with reasonable efficiency, but continued to see the world inverted (see also Ewert, 1936, 1937).

Complementary evidence is provided by Held and Bosson (1961), who used lenses which shifted everything to the right of the wearer. Pairs of students were used, both of whom exhibited equal levels of impairment as determined by a test of motor co-ordination. One of each pair was then seated in a wheelchair while the other pushed him around. At the end of the adaptation period, the seated student still exhibited marked perceptual impairment while the active student was able to perform accurately and efficiently (see Held, 1965).[3,4]

In light of these data, Elkind (1970) has concluded that "It is the activity of the subject which actualizes the inborn potentialities in relation to environmental givens.... At each step in perceptual growth, it is the activity of the subject which consolidates past givens and makes possible new acquisitions."

Speaking from a different perspective on the same data, Held and Freedman (1968) have argued that the sensory and motor pathways interact to form a feedback mechanism the operation of which is essential for the maintenance and develop-

ment of sensorily guided behavior and is responsible for the stable functioning of flexible human systems of co-ordination (see also Piaget and Lambercier, 1958; Drever, 1960).[5,6]

In other words, neither environmental stimuli nor the subjective organization of those stimuli alone can account for available experimental data. A continual feedback relationship between the two appears to be an integral part of perceptual processes. Perception is a complex function of the interaction between the individual and a context.

2.1 Memory Another aspect of mental disorder involves disturbance of memory functions. Such disturbance may include dysfunction in registration, retention and recall (e.g. (amnesia) (Linn, 1967) and is also related to disturbances in cognition since memory is an integral part of all thinking and learning (M. Deutsch, 1967; see Sec. 3.1, below).

In the traditional view, memory storage is a static mechanism, involving a one-to-one correspondence between environmental events and stored information. The strongest evidence in favor of this view of memory is provided by the work of Penfield (1952: 179-183). In the course of operating on the human brain, Penfield reports that by touching the surface of the cerebral cortex of an alert patient with an electric probe, the patient reported vividly remembering past events in his life.

Neisser (1967:168) argues, however, that Penfield's

conclusion that this is evidence for static storage of sensory data is based on three assumptions, all of them false: he rejects the assumption that the original memory must have been reproduced because the patient experienced it as familiar; that the memory must be accurate because it was extremely vivid; and that the record must be complete because recall sometimes involved trivial events. Rather, he points out that familiarity can be misleading; that the study of hypnagogic memories indicates that while they are vivid they are also often inaccurate; and that because some events are remembered, it does not follow that no events have been forgotten.

Experimental evidence suggests that memory retrieval is an active, reconstructive process involving the categorization and transformation of data. As far back as 1932, Bartlett concluded, based on a series of experimental tasks (e.g. the repetition of stories), that, "the description of memories as 'fixed and lifeless' is merely an unpleasant fiction." (p. 311). Rather, he suggested that memory is fundamentally a reconstructive process achieved by means of cognitive schema, defined as "active organization(s) of past reactions, or past experience(s)" (parentheses added) which serve to systematically order diverse bits of sensory data.

More recent research into memory retrieval processes is fully consistent with Bartlett's conceptualization

(Bower, 1970; Mandler, 1968; Neisser, 1967: 140-149). In light of these findings, Mischel (1973a) has concluded that, "rather than mimicking observed responses or returning memory traces from undisturbed storage vaults, the observer selectively constructs (generates) his rendition of "reality" (paranthesis in original).

Koestler (1967: 105-114) presents an ingenious, albeit speculative, elaboration of these data. He suggests that the recall of past experience is made possible by the co-operation of several interlocking hierarchies which may divide different sense modalities (e.g. sight, sound) or different branches within the same modality (e.g. sound: timbre, pitch, loudness, etc.), each hierarchy having its own unique criteria for relevance. Memory would thus consist of a complex composite or abstraction of the original experience, with each separate hierarchy responsible for only one aspect of the total experience.

An alternative formulation has recently been advanced by Norman (1968). This involves a three-stage theory which specifies the operation of attention and selection processes, the temporal attributes of memory storage, and the operation of selection and retrieval mechanisms. Norman summarizes the theory as follows, "There are two forms of storage: primary and secondary. These two forms are different aspects of one large storage system. Primary storage is the temporary

activation of parts of this large storage by the sensory inputs. Secondary storage is a long-term excitation. Some of the properties of attention imply that we interpret all sensory inputs. This interpretation can be performed automatically if storage is organized so that access to stored information can be made directly from a sensory code. Complete interpretation of inputs and efficient selection among them requires a continual reassessment of the permanently stored information associated with each input. This can be performed by a recursive (i.e. feedback) process, aided by temporary memory traces. The simple analysis of each input signal is not sufficient to resolve ambiguities and establish a complete interpretation. This comes only when a pertinence input complements the sensory input. Thus, attention and selection use the primary storage activation of secondary storage to enable efficient selection among, and analyses of, sensory inputs." (p. 535; paranthesis added).

Regardless of which of these formulations receives empirical corroboration, (if either of them do), the foregoing review of research findings suggests that memory is a dynamic process as opposed to a static mechanism. It necessarily involves interaction between the individual and a context.

3.1. Cognition. A third aspect of mental disorder involves disturbance of cognitive processes. This may entail

disturbance in the form, content and stream of thought as well as judgment (Linn, 1967). In the study of schizophrenia alone, for example, a massive literature exists attempting to document the differences between normal and schizophrenic conceptual abilities and functioning (M. Deutsch, 1967).

Data available to the individual must somehow be applied to the solution of a diverse range of everyday problems. Present evidence suggests that the cognitive processes involved in problem solving are a function of (a) a complex interaction between available environmental stimuli, the subjective perspective of the individual and the context in which the interacting stimuli and subject are embedded, plus (b) the individuals' capacity to categorize response contingency patterns in terms of their logical (e.g. size) as opposed to their stimulus characteristics (e.g. shape, colour, etc.).

Mischel and his associates (summarized in Mischel, 1973a) report an experiment in which pre-school children were given a choice between two alternatives: they could sit alone in a room for as long as they could in order to receive a preferred reward (e.g. food) or they could signal with a bell for a less preferred but immediately available reward (e.g. toy). Results clearly indicated that a child's conceptualization of the stimulus object and of the experimental context, and not just the stimulus attributes of the object alone,

determine a child's ability to delay response. Through cognitive transformation of the stimulus object (e.g. imagining a marshmallow as a piece of cotton), the subjects were able to completely alter the physically present object and delay their responses with precision.

A second set of experiments indicates that, with sufficient experience with logically similar but physically dissimilar stimulus objects, subjects exhibit perfect problem-solving ability as a function of discriminating between logical types; in effect, they learn to learn. This notion, developed by Bateson (1972: 292-295) as deutero-learning, derives empirical support from several sources.

Hull et al. (1940), studying the rote learning of nonsense syllables, found that all subjects exhibited an improved capacity to remember nonsense syllables with each successive learning trial. Such learning could not be explained by reinforcement contingencies in the preceding learning trial since syllable sequences were different each time. What seems to have been learned was the solution of the problem as a logical type, with each learning trial seen as simply a different form of the same problem.

Similar findings have been reported by Harlow (1949) with respect to discrimination learning in nursery school children. Each subject was faced with two objects different in colour, size, and shape. If the correct object was lifted, the subject

was rewarded (e.g. by finding a peanut or a raisin). A single characteristic of one object was held constant (e.g. shape), and thus served to define the logical type of the problem, while its other characteristics (e.g. colour, size and position) as well as those of the second object were varied randomly from trial to trial. The trials were repeated with many different pairs of objects until the subject reached a criterion level of success. The results indicated that while learning was initially slow, it became progressively better until, eventually, the children were correct in every trial; they exhibited perfect "insight" into this type of logical problem.[7]

Evidence such as this had led several theorists to conclude that what is learned in the course of development is neither a set of isolated facts nor a set of response contingencies alone, but rather a series of cognitive structures by means of which the totality of lived experience is organized (Piaget and Inhelder, 1969; Aronfreed, 1968).

That this formulation will ultimately receive direct empirical support remains uncertain. What is certain, however, is that evidence with regard to cognitive processes is not easily explained in terms of either environmental stimuli or of individual organization of such stimuli, but rather appears to be a complex function of the interaction between them.

4.1. Language. Integral to most cognitive processes is

the use of language. Indeed, in a sense, language may be conceived as the currency of cognition (M. Deutsch, 1967). Whorf (1956), for example, theorizes that the structure of thought is determined by the structure of language. In view of the importance of cognitive processes in the manifestation of mental disorder (see Sec. 3.1, above) and the fact that much of the symtomatology associated with it is expressed via language (Linn, 1967), insight into language acquisition would seem to be important in understanding mental disorder.

Once again available evidence strongly indicates that the acquisition of language is dependent on interaction between the individual and a context.

On the one hand, a good deal of evidence indicates that language acquisition is a natural consequence of maturational developmental processes, regardless of contextual circumstances. Lenneberg (1969) studied infants raised by deaf parents in order to determine whether the unusual nature of their verbal environment had any effect on their language development. He found, among other things, that infants raised by normal and deaf parents "fuss" equally, even though the hearing parents were more responsive to the fussing of their infants than were deaf parents. Based on these data, he concluded that the earliest development of human sounds appears to be relatively independent of "the amount, nature, or timing of the sounds made by parents." (p. 637).

In a series of experiments, Furth (1966) and Lenneberg (1967) examined the hypothesized relationship between language development and cognitive skills. They found that young, congenitally deaf children when tested with nonverbal procedures, showed no general deficiency in cognitive skills. Lenneberg (1967) reported that deaf children performed no differently than hearing children on the Leiter scale, a largely language-free concept formation test. Furth (1966) showed that deaf children do not differ significantly from hearing children on such tasks as the conservation of quantity.

In a third series of experiments, Brown (1973; Brown and Hanlon, 1970), using naturalistic observation, found that parents contingently approve not the syntactic structure of their childrens' utterance but rather their truth value. In other words, they approved incorrectly stated but true statements, whereas they disapproved of correctly stated but false statements. In addition, parents were observed to make comprehending responses as often to their childrens' well formed utterances as they did to badly formed utterances. It thus appears that childrens' syntax was neither selectively approved nor systematically reinforced by comprehending responses of their parents. Nevertheless, the childrens' syntax was observed to improve with age.

In the light of these and similar data, Lenneberg (1967)

has argued that language syntax develops in much the same way in all children, regardless of context. Along similar lines, Bruner et al. (1966) have argued that language syntax includes complexities and abstract features long before such features are present in a child's thought.

Alternatively, evidence also indicates that children do not exhibit normal language acquisition unless they experience some interaction with a verbal context. For some retarded individuals growing up in understaffed institutions and for children of deaf parents, much language appears to be picked-up from television and radio (Lenneberg, 1969), sources which cannot be differentially responsive to the child's own verbal efforts.

In addition, with respect to the relationship between language and cognitive skills, Sonstorem (1966) has shown that training in the conservation of solids (balls of clay) was facilitated when the child performed the transformation himself. Language remained important, however, since the effect of the child's manipulation of the clay was clearest when the manipulation was accompanied by labelling by the experimenter; labelling alone, unaccompanied by manipulation by the child, did not have a significant effect.

Based on these and similar data, Lenneberg (1969: 637) had concluded that the "engagement in language activity can be limited by environmental circumstances, but the underlying

capacity is not easily arrested. Impoverished environments are not conducive to good language development, but good language development is not contingent on specific training measures...." Slobin (1971:56) agrees and goes on to say that "what the child acquires in the course of language development is not a collection of S-R... connections, but a complex internal rule system.... (apparently) the child has innate means of processing information and forming internal structures, and ... when these capacities are applied to speech he hears, he succeeds in constructing a grammar of his native language." (paranthesis added).[8]

In short, language acquisition appears to be a complex function of the interaction between the innate abilities and capacities of the individual and the verbal (and physical) context in which these abilities are exercised.

5.1 Mental Disorder: Two Aspects. Finally, I will examine recent data with respect to two aspects of mental disorder, namely, schizophrenia and paranoia. In sharp contrast to the traditional view, in which these disorders are seen as inherent within the individual, these data indicate that the disorders in question are a function of the interaction between the individual and a (social) context.

5.1.1 Schizophrenia. Clinically, schizophrenia involves disturbance of cognition (e.g. delusions), thinking (e.g. autism), verbalization (e.g. neologisms), affect (e.g.

inappropriate affect) and often behaviour (e.g. social withdrawal) (Lehmann, 1967). Traditionally, this symptom cluster is not seen to be, in any sense, systematically related to contextual events and/or circumstances; such disturbances are inherent in the individual.

This view, however, is not supported by empirical studies of the families of schizophrenic patients (Jackson, 1957, 1965b, 1968, 1970; Haley, 1959, 1962). These studies reveal that within such families interaction appears to be regulated by family rules or norms, themselves developed through interaction, which serve to define the limits of acceptable conduct. Deviation from these rules by any member effects a corresponding change in the behavior of other members so as to reduce this deviation. It appears that the behavior of the schizophrenic member is an integral part of this interaction process, serving as it does to counteract deviation on the part of other members. In other words, patterns of familial interaction, part of which includes the conspicuous behavior of schizophrenic members, serve to maintain homeostasis within such families, conceived as social systems.

These findings suggest that schizophrenic behavior involves processes of interaction within certain types of family it inheres not in the identified patient alone, as suggested by the traditional view but rather in the interaction between family members. Thus schizophrenia appears to be a

complex function of the interaction between the individual and a specific (social) context.

5.1.2. Paranoia. Traditionally, paranoia is conceived as a disorder in which distorted perception of environmental events is determined by intrapsychic processes within the disordered individual. This view is summarized by Beck (cited in Minuchin, 1974:10) as follows, "among normals, the sequence of perception-cognition-emotion is dictated largely by the demand characteristics of the stimulus situation... (However) the paranoid patient may selectively abstract those aspects of his experience that are consistent with his preconceived idea of persecution, etc. He may make arbitrary judgments which have no factual basis. These are usually manifested by reading hidden significance and meanings into events. He also tends to overgeneralize isolated instances of intrusion, discrimination, etc." (parenthesis added). In other words, paranoid behavior is caused by a series of mental events which precede and determine manifest behavior, these events being, in effect, independent of contextual events and/or circumstances.

Study of paranoid individuals, however, indicates that, at least in the initial stages of this behavior pattern, the social contexts in which such individuals express their feelings of persecution play highly significant roles in maintaining and facilitating their "problem" behavior (Lemert, 1967: ch. 5).

Significant others, such as friends, family and fellow employees, try to contain the paranoid individual because his behavior is highly disruptive. They avoid him when possible and deliberately exclude him from decision-making. They tend also to employ a humoring, pacifying and non-commital style of interaction, and may even spy upon him or form collusive networks in order to inveigle him into receiving psychiatric attention (see Goffman, 1969; Laing and Esterson, 1964; Rioch, 1971).

In the light of these findings, it appears that, far from being determined by intrapsychic processes alone, paranoia is rather a complex function of the interaction between the individual and a (social) context.[10, 11, 12]

C. Conclusion

In this chapter, I have reviewed experimental evidence in five different substantive areas related to mental disorder. In each case interaction between the individual and a context, particularly a social context, appears to be involved as an important contributor to mental disorder.

FOOTNOTES

1. Melzack writes in a similar vein in a discussion of research findings related to the sensation of pain (Melzack, 1961). It was once believed that afferent sensory input was directly transmitted to the brain via the spinal cord. Recent evidence, however, indicates the presence of a system of descending efferent nerve fibers running from higher brain centers to make contact with ascending afferent fibres in the spinal cord. The former appear able to modify and, under certain conditions, even suppress signals carried by the latter. Melzack concludes, "The psychological evidence strongly supports the view of pain as a perceptual experience whose quality and intensity are influenced by the unique past history of the individual, by the meaning he gives to the pain-producing situation and by his 'state of mind' at the moment." (see also Craig et al., 1975).

2. Evidence indicates that visual adaptation does not occur in lower animals, such as monkeys, chickens and amphibians, when they are fitted with inverting lenses (Gregory, 1966: 208-209). Negative results have also been reported when in such animals the equivalence of retinal inversion is achieved by severing the optic nerve and allowing the severed ends to grow together after one of them has been rotated through 180° (Koestler, 1967: 205).

3. Similar finding have been reported by Held and Hein (1963) working with kittens. Pairs of kittens were reared in darkness and allowed visual experience only under experimental conditions. At that time, one kitten was allowed active movement which, in turn, served to move the other kitten who was passively enclosed in a basket and so had no direct contact with the environment. Both kittens therefore received identical visual experience. After a specified amount of experience, both kittens were tested to determine their degree of visual development. The active kitten exhibited normal visual development whereas the passive kitten was functionally blind.

4. Additional data regarding the development of visual perception are provided by Riesen's (1950) study of the effects of sensory deprivation in chimpanzees. Three chimpanzees were given varying amounts of daily experience with patterned light. Riesen found that their visual competence was closely correlated with the amount of visual experience they had had. He concluded, "All these observations demonstrate that vision must be put to use if it is to develop normally ...." Similar findings have been reported with regard to the development of manipulative skills in chimpanzees (Nissen et al., 1951).

5. The presence of homeostatic feedback mechanisms does not apply only to the entire sensory-motor system but to parts

of it as well. Fender (1964), for example, in a study of control mechanisms of the eye, found that control involves a system of multi-leveled, crosslinked and hierarchically organized feedback mechanisms.

6. One may speculate that practice is essential in order to integrate the system of crosslinked feedback mechanisms which control sensory-motor systems. Criterion values of each mechanism may be developed through reciprocal interaction in order to facilitate the smooth interaction between mechanisms, both between (e.g. eye-hand co-ordination) and within (e.g. the eye) systems.

7. In the same paper, Harlow (1949) reports identical results with rhesus monkeys. He called the process of progressive learning the formation of a "learning set".

8. Miller et al. (1960; 146-147) have argued that the S-R theory of language acquisition (see Skinner, 1957) is untenable. Using an English sentence of no more than twenty words as a criterion, Miller and his associates have estimated that the S-R model would require a child to learn 3×10^{20} words per minute through a childhood lasting one hundred years, with no interruptions and perfect recall after only one presentation, in order to acquire all the information necessary to be fluent in the English language. An alternative model, employing hierarchically organized cognitive structures, appears to provide a more adequate explanation of language

acquisition (see Johnson, 1968).

9. Analogous findings have been reported in regard to the reproductive behavior of ring doves (Lehrman, 1964). These are small, pigeon-like birds which have a stereotypical reproductive cycle lasting between six and seven weeks. Study of the means by which this cycle is regulated reveals the operation of a double set of feedback mechanisms. The first set involves the effect of hormone production upon behavior and the effect of external stimulation on the secretion of hormones. The second set involves the effect of the presence and behavior of one mate upon the endocrine systems of the second and the effect of the presence and behaviour of the second mate back upon the endocrine system of the first.

These findings indicate that the behavioral sequences of each member of the mating pair during the reproductive cycle are found in neither bird in isolation and that the synchronization of cycles of the mates is a complex function of the interaction of inner and outer 'environments' simultaneously.

10. A complementary example is provided by the work of Delgado (1969; 71, 129) on the effects of electrical brain stimulation (EBS) in the cat and the rhesus monkey. Electrical stimulation of the hypothalamus and the amygdala, is known to elicit species-specific behavioral

sequences (e.g. aggression). Delgado found that the specific nature of the response to such stimulation was related to the context in which it occurred. This was particularly evident in the rhesus monkey, a creature which lives in social groups or colonies characterized by a rigid dominance hierarchy. Stimulation-induced aggression was expressed as a complex function of the social context and the social rank of the animal stimulated. Animals high in dominance tended to fully exhibit stimulation-induced aggression whereas animals low in dominance tended to inhibit or even suppress their aggressive response.

11. The interaction between the individual and a context appears to be an integral part of all life processes. Delgado's (1969) review of studies of the development of physiological processes provides evidence in support of this view. Early in development, for example, many efferent fibers appear before efferent fibres have entered the brain. This suggests that "cerebral growth determines the attitude of the individual to its environment before that individual is able to receive any sensory impressions of its environment." (p. 40). On the other hand, interaction with the environment is essential for proper development. Radio tracer studies indicate that some 80-90% of all neural fibers are developed after birth, at least in certain portions of the mammalian brain. Experience,

provided by sensory input from the environment, has been shown to have a significant influence on the density, structural connections, anatomy and biochemistry of these postnatal brain cells. Delgado therefore concluded that "it can be said that the environment is absorbed as a structural part of the neuron in the developing brain," (p. 49).

12. For a similar formulation of depression, see Coyne (1976a, 1976b).

Chapter 3

The Psychoanalytic and the Behavioral Models

A. General Introduction

Among the explanatory models of mental disorder that have been published three are pre-eminent: one psychoanalytic in character, one behavioral and the third derived from General Systems Theory (GST). Collectively their proponents account for the majority of research into mental disorder to date.

In the preceding chapter an analysis of selected portions of the literature related to psychiatry showed that it is essential to take into account the interaction between the individual and a context, particularly a social context, in explanations of mental disorder. In this and the following chapter the analysis is carried one step further to determine the extent to which the models in question are amenable to this interactional analytic focus. I will examine several of the basic causal assumptions underlying these models with reference to explanation offered for mental disorder in general or for a specific diagnostic category of disorder.

I will argue that these assumptions introduce a bias into the models favoring a particular analytic focus and its particular unit of analysis, and that proponents of the models consequently require varying amounts of theoretical elaboration to come to grips with the interaction between the individual and a (social) context. The notion of "theoretical elabora-

ration" is here taken to mean the number of steps logically required by the proponents of any given model to provide a complete account of mental disorder.

On the assumption that it is wise to hold theoretical elaboration to a minimum, the model which requires of its proponents the least amount of elaboration is preferred over others and its analytic focus and its unit of analysis logically are preferred over alternatives (see Ch. 1: 7-9).

The psychoanalytic and the behavioral models are examined in this chapter while GST and the model derived from it are examined in chapter 4.

The aims of the present chapter are threefold: first, to demonstrate that the causal assumptions which I attribute to the psychoanalytic and the behavioral models do indeed apply to them; second, to demonstrate that these assumptions bias proponents of the models in favor of a non-interactional analytic focus and unit of analysis; and, third, to demonstrate that as a consequence of these assumptions, analytic foci and units of analysis, the attempt by proponents of either model to come to grips with the interaction between the individual and a (social) context requires a good deal of theoretical elaboration.

B. Three Causal Assumptions

1.0 Determinism

Scientific endeavor is founded on the philo-

sophical assumption of general determinism. This assumption comprises two concepts: productivity and lawfulness (Bunge, 1959: 22-23). The latter concept holds that every event is lawful, that is, determined in accordance with sets of objective laws, whether we apprehend these laws or not. This is not to say that laws themselves determine anything but rather that they indicate patterns of determination. Nor does this concept require that all phenomena should always occur in the same way, given that certain conditions are fulfilled; irregularity in some but not all respects is consistent with collective regularity.

The concept of productivity holds that nothing comes out of nothing or passes into nothing. In other words, there are neither absolute beginnings nor absolute terminations; everything is rooted in something else and, in turn, leaves a "track" in something else (the genetic principle). This principle is consistent with that of lawfulness, on which it puts restrictions, but is independent of it. Everything might be the outcome of certain processes and might in turn give rise to other processes yet not operate in a lawful way.

Taken together, these concepts yield the general principle of determinism: "Everything is determined in accordance with laws by something else, that something else being the external as well as the internal conditions of the object in question." (Bunge, 1959: 26). In more prosaic terms, events happen in one

or more definite (i.e. determinate) ways; such ways of becoming are not arbitrary but are lawful; and the process(es) whereby events and/or objects acquire their characteristics develop(s) out of pre-existing conditions (Bunge, 1959:13).

As stated previously, the validity of this principle is a fundamental assumption of science. Moreover it cannot be refuted since future investigations are expected to confirm it wherever it may now appear to be falsified. As a general principle, it subsumes several different categories of determinism. Predominant among these categories is that of causality, to which I now turn.

1.1 Causal Determinism

Causality, or rather the causal principle, has undergone numerous changes in its long history. The earliest formulation of it goes back to Aristotle, who elaborated Plato's scattered ideas concerning causality. In its present form, the causal principle may be succinctly stated as follows; where "C" designates cause and "E" designates effect, "If C happens, then (and only then) E is always produced by it." (Bunge, 1959: 47). This says that an effect is not merely accompanied by a cause but is engendered by it in a necessary (i.e. constant and unique) manner. Under this principle are subsumed several component concepts (Bunge, 1959: 36-46), several of which are listed here:

a) conditionalness: the existence of an effect is

dependent on the pre-existence of a cause.

b) uniqueness: the relationship between C and E is that of a single E for every C. E follows uniquely and unambiguously from C.

c) one-sided dependence of E upon C: the effect appears provided that the conditions summarized by the cause(s) have been fulfilled. This asymmetrical dependence of effect upon cause is conventionally symbolized in the form C→E and is also known as the principle of existential succession.

d) invariability of the connection between C and E: if a cause is present then an effect will ensue invariably.

e) productivity: causes and effects are not merely regularly associated with each other; effects are produced by causes. In other words, an event of the class C produces an event of the class E.

These five concepts together constitute the principle of causality, one of several categories of determinism. It is assumed that the principle is valid. There exists a doctrine of causal determinism (also known as 'causalism') which holds that the causal principle is universally valid to the exclusion of other principles of determination (Bunge, 1959: 27). As components of this doctrine, the above concepts have been incorporated into the psychoanalytic and the behavioral models

as implicit assumptions. Three of these assumptions are briefly summarized below.

2.0 The Assumption of Linear Causality

It is held by proponents of causal determinism that any series of causes (i.e. states and/or processes) and effects always takes the form of a linear chain (i.e. universal chaining)(Bunge, 1959:127). Isolation, continuity and chaining are subsumed under this assumption as three separate concepts.

The notion of chaining holds that explanation involves the identification of a link in a causal chain. Provided that no First Cause (cf. Aristotle) is admitted, then causal determinism demands the postulation of an infinite regress of causes and effects, a postulation which itself rests on the assumption of the unrestricted validity of the causal principle.

The notion of isolation holds that it is, in principle, possible to isolate a single cause-and-effect chain from all other causal processes. For a process to be regarded as truly causal, either one factor or one of its consequences must be singled out of the whole constellation of determinants. Isolated phenomena are thus regarded as resulting from causal chains distinct from and parallel to other causal chains.

Finally, the notion of continuity holds that causality involves the continuity of action between cause and effect. There are no gaps in causal chains. An important feature of

continuity is that in it there is presumed to be a one-to-one correlation between causes and effects. Like causes have like effects (Bunge, 1959: 138).

3.0 The Assumption of Unidirectional Causality

It is held by the proponents of causalism that there is a one-sided dependence of effect upon cause; causes alone are active and productive, whereas effects are their passive consequences (Bunge, 1959:148). Causes are always changes (i.e. events and/or processes) originating other changes. This assumption is consistent with the identification of causation as a unique, uniform succession of states, for a state cannot react back upon a previous, already non-existent state.

4.0 The Assumption of Summative Causality

It is held by the proponents of causalism that causes have an arithmetic character (Bunge, 1959: 165). The causal factors of an effect act independently of one another. Even when they act jointly they behave as an aggregate and not as a whole with properties not found in its component parts. That is, causes may be added or subtracted, but an association of causes will not constitute novelty. A conjunction of causes will produce quantitative change alone.

Given this additive nature of causality, causal analysis is essentially a separation of complex determinants into sums of causes. It is assumed that complex phenomena cannot be understood as wholes but must first be reduced to their constituent

elements. Knowledge of these elements then constitutes knowledge of the whole, since the latter is regarded as the arithmetic sum of its components. (Bunge, 1959: 165-167).

5.0 Discussion

Assumptions concerning the nature of causality, derived from the doctrine of causal determinism, have profoundly influenced the history of science. Long a part of the assumptive base of the physical and biological sciences, they were readily integrated into the social and behavioral sciences as part of their drive for acceptance as legitimate scientific disciplines.

In recent years, however, as evidence has rapidly accumulated within the physical and biological sciences, it has become apparent that these assumptions are not well suited to description of the interaction between factors. Consequently, they have been or are being abandoned by those very sciences whose acceptance, in effect, accorded them the stamp of scientific respectability (Bunge, 1959: 149-156; Koch, 1964).

In contrast, the social and behavioral sciences have been much slower to respond to newly accumulated knowledge. Only recently is increasing dissatisfaction with these causal assumptions beginning to emerge (e.g. Friedrichs, 1970). If the experience of the physical and biological sciences may be used as a guide, it may be expected that explanatory models of human behavior, including mental disorder, which are founded

upon these assumptions will become increasingly complex and elaborated until, eventually, they will either become unworkable and will be abandoned or they will undergo substantial revision. By pointing, in what follows below, to the amount of elaboration required by models of mental disorder founded upon these assumptions, my intent is to hasten one or another of these processes.

C. The Psychoanalytic Model

1.0 Introduction

The psychoanalytic model is designed to provide a comprehensive explanation of human motivation. Accordingly, its proponents focus on the individual human mind conceived in terms of a series of dichotomies or polarities. As Mach and Semrad (1967) explain, "mental life, in general, is dominated by three polarities; the first, subjective (ego) versus objective (outer world) represents the polarity of reality; the second, pleasure versus unpleasure, is designated as an economic polarity; and third activity versus passivity, is identified as a biological polarity. In fact, this dualistic view reflects the essential nature of the instrument studied, the human mind." (p. 276, present tense added).

Further, by postulating the existence of both conscious and unconscious mental processes (see sec. 3, 4, below), all psychic events are seen in the model as fully determined ("psychic determinism") (Brenner, 1974:2-3). Nothing happens

in the mind by chance; every psychic event is determined by a psychic event or events which precede it.

This emphasis on psychic processes has several important consequences for the model. First, it reflects the strict (micro)determinism which permeates all aspects and phases of the model. Second, it diminishes the importance of manifest behavior (Skinner, 1967a), now seen as merely a sign or symptom from which to infer stable, underlying mental states (Brenner, 1974:3-4; Mischel, 1973). Third, it highlights an ontological assumption which underlies the model, namely, that the individual alone is real; groups, conceived to be merely aggregates of individuals, are abstractions.

From the preceding discussion it is apparent that the individual is both the analytic focus as well as the unit of analysis in the psychoanalytic model. The theoretical consequences of this choice of focus and unit when it is joined to the assumptions summarized in section B, are the primary concerns of the remainder of the present section (C).

2.0 Neurosis: An Explanation

The Psychoanalytic model was developed as a result of the study of patterns of human behavior which have come to be called neurotic (Mach and Semrad, 1967). A large amount of thought and study contines to be directed at neurosis in the current psychoanalytic literature. I will therefore use the explanation of neurosis as an example of the general

explanation of mental disorder that is advanced in the model.

In the psychoanalytic model neurotic symptoms are held to be the result of conflict between hypothesized mental structures. Unfulfilled and unacceptable infantile strivings of the Id seek to break into consciousness and are opposed by the Ego and the Superego. By the expenditure of large amounts of libidinal energy, the Ego generates neurotic symptoms in efforts to modify the aims of the Id so that the Id might become less urgent in its strivings and be kept in check (Brenner, 1974: 304; Mach and Semrad, 1967).[1]

Two aspects of this explanation deserve special mention. First, it is historical in character. Fundamental to the psychoanalytic explanation of neurosis is the identification of a sequence of early experiences presumed to be at the root of current symptomatic behavior.

Second, this explanation embodies a conceptualization of mental disorder that is literally restricted to mental phenomena. The source of "abnormal" behaviour is "inside" the individual, in his mind, and is conceived as a disorder in the functioning of the mental apparatus.

3.0 Fundamental Concepts/Hypotheses of the Psychoanalytic Model

The preceding explanation is based on a number of concepts/hypotheses which are fundamental to the psychoanalytic model. (My use of the slash (/) is to underline the ambiguous status of these notions in the model.) What these

concepts/hypotheses are and what is meant by them must be established before the worth of the explanation can be assessed. The most significant of them are dealt with below.

3.1. Psychic Energy

Psychic energy is an important idea in all aspects and phases of the psychoanalytic model (Peterfreund, 1971:43).[2] This energy is typically defined, rather vaguely, as that constituent of the mind which, when operative, produces a state of psychic excitation (Brenner, 1974:17). It is conceived as being identical with physical energy (e.g. Rapoport and Gill, 1959) or as analogous to it (e.g. Brenner, 1974:17), energy that serves both to impel the individual to activity and to provide the continuous means by which various mental structures operate.

Psychic energy has a number of distinctive characteristics in the psychoanalytic model:

(1) qualitative character: several forms of psychic energy are identified, each of which has a qualitative character different from every other form. Thus, as variations of the energy associated with the basic human drives of sexuality ("libido") and aggression, "mobile", "bound" and several different kinds of "neutralized" or "desexualized" energy are also identified (Rapoport and Gill, 1959; Hartmann et al., 1953).

(2) transformation: energy can be fused and combined in a

variety of ways that alter its properties (Peterfreund, 1971: 47). For example, neutralized energy is "energy which has been appreciably altered from its original, sexual or aggressive character." (Brenner, 1974:53).

(3) transference: energy can be transferred to the psychic representation of an "object" (which may be a person). The process is called cathexis and is defined as "the amount of psychic energy which is directed toward or attached to the psychic representation of a person or a thing." (Brenner, 1974:18). In this process of transference, the "object" invested with energy is altered, "the essential nature of the resultant change... is related to or dependent on the identity or qualitative characteristics of the psychic energy transferred." (Peterfreund, 1971:49). The greater the cathexis, the more "important" the object psychologically. The obvious example is the relationship between a mother and her child. In psychoanalytic terms, it is said that, "the child's mother is an important object of its drives, and that this object is highly cathected with psychic energy." (Brenner, 1974:18).

(4) directionality: psychic energy is purposeful in that it has a particular objective or "presses" in a particular direction. In this postulation are four conceptual components - source, impetus, aim and objective - which together comprise the psychoanalytic definition of instinct. Source refers to somatic processes the stimulation of which con-

stitutes human drives or instincts. Impetus refers to the amount of force or demand for work made by the instincts. Aim refers to the satisfaction or reduction of excitation by an act of any sort. Objective is the person or thing which is the target of this purposeful action. In short, an instinct is "a certain quota of energy which presses in a particular direction." (Freud, 1933 cited in Peterfreund, 1971: 47). It should be noted that insofar as the psychic apparatus is conceived in the model as a balanced energy system, any change in the energic properties of any structure necessarily produces a corresponding change in other structures. Thus, for example, excitation of the drives in the Id cannot but have an effect of some sort on the Ego and Superego. In principle, the same process of corresponding change is applicable to energy transference.

These four conditions of an individual constitute the notion of psychic energy which Peterfreund (1971:53) argues constitutes a simple "hydrodynamic" model. He explains as follows, "If one reviews the psychoanalytic literature carefully it becomes clear that psychic energy is spoken of as though it were an imponderable fluid with identity (i.e. qualitative character), a fluid with directional properties, a fluid whose identity can be changed, a fluid that can be dammed up, discharged, transformed, and so on." (paranthesis added).

This perspective on the notion of psychic energy is useful

because it brings into sharp relief the assumptions of linearity and summativity which underlie it. First, in the model there is a one-to-one correspondence between energy changes and/or movements between psychic structures; any change in the character or direction of energy in one structure necessarily produces a corresponding change in other structures. Second, the total amount of psychic energy in the mind at any given moment is conceived as merely the sum of the energy located in the various mental structures which comprise it.

3.2 Psychosexual Stages and the Oedipal Complex

In the psychoanalytic model the sex drive is already present and at work in the infant. The manifestation of this drive from infancy on follows a fixed sequence of stages, Anal, Oral and Phallic. The Latency and Genital stages are included but are not accorded as much importance as the other three (Brenner, 1974:23-25). In addition, important object relations (relations with significant others) in the Phallic stage are grouped together and form the core of the Oedipal Complex or phase (Brenner, 1974: 105).

While all these stages in sequence account for only approximately the first six years of life, they are seen in the model as the single most significant temporal period in the life of the individual.[3] There are at least four reasons offered for this significance:

1. During this period the "polymorphous perverse" sexual drives of the child are restricted and channeled into those parts of the body appropriate for the expression of adult sexuality, primarily the genital regions (Mach and Semrad, 1967).

2. The infant's psyche is differentiated in this period and elaborated into the mental structures which later comprise the adult mind.

3. The nature and quality of object relations during this period determine the choice of adult love objects as well as object relations in other spheres of activity (Mach and Semrad, 1967). There is a tendency for highly cathected objects to persist, at least unconsciously, throughout life (Brenner, 1974: 102). Moreover, part of the Ego, a major psychic structure, is thought to be a precipitate of these object relations (Brenner, 1974: 101).

4. Events associated with the Phallic stage are specially significant. It is during this period that the incestuous and parenticidal impulses and conflicts, now known as Oedipal Complex, must be worked though and its difficulties resolved by repression of these impulses and conflicts into the unconscious (Brenner, 1974: 105). Normal development otherwise will not occur. Events of this period continue to influence the individual for the balance of his life in two ways. First, the Superego, another of the major psychic

structures, develops as a consequence of the repudiation of hostile wishes characteristic of the Phallic stage (Brenner, 1974: 113). The intensity of these wishes is thought to determine the severity of the Superego (Brenner, 1974: 117). Second, Oedipal fantasies, although repressed into the unconscious, exert a powerful influence in disguised form in various aspects of mental life - for example, in the form and object of adult sexuality, in creative self expression, in character formation, as well as in the nature and amount of neurotic symptoms (Brenner, 1974:111).

In a very real sense, proponents of the psychoanalytic model hold to the traditional maxim that the child is father to the man. Such a view of psychological development is in keeping with the causal assumptions of linearity, unidirectionality and summativity. Human psychological development is seen to proceed through a unidirectional sequence of stages in which the end result, the adult human psyche, is merely the sum of the events and/or processes which comprise these stages.

3.3. The Structural Hypothesis

Proponents of the psychoanalytic model postulate that the mind is comprised of three centres of mental functioning or structures (hence the term "structural hypothesis): the Id, the Ego and the Superego (Mach and Semrad, 1967).

The Id: The Id is the locus of the sex and aggressive drives and throughout life retains a substantial proportion

of the individual's store of psychic energy. It is under the domination of the primary process and operates in accordance with the pleasure principle, which refers to the in-born process whereby "the mind tends to operate in such a way as to achieve pleasure and to avoid its opposite". (Brenner, 1974: 66). The term primary process refers to a mode of mental functioning which is primitive and undisciplined and "presses" for the immediate discharge of cathected drive energy (Brenner, 1974: 45-46, 67). The Id operates on mobile psychic energy (Peterfreund, 1971: 48).

The Ego:[4] The Ego in recent years has come to be seen in the psychoanalytic model as the single most important mental structure of the three. It is that portion of the mind concerned with the external environment. Accordingly, it is under the domination of the secondary process and operates in accordance with the reality principle. The latter term refers to the learned process by which the mind, in response to demands of the external world, delays or postpones immediate pleasure (discharge of energy) with the "aim" of achieving even greater pleasure in the long run (Mach and Semrad, 1967). The former term, secondary process, refers to a disciplined mode of mental functioning characteristic of the mature Ego (Brenner, 1974: 45). In contrast to the Id, the Ego operates on bound and neutralized energy (Brenner, 1974: 53).

The Ego is conceived to have crucial functions which,

broadly speaking, encompass integration, control, adaptation and organization (Peterfreund, 1971: 56). A partial listing of these functions (Mach and Semrad, 1967) is as follows:

1. the relationship with reality includes adaptation to reality as well as reality testing. Adaptation refers to the capacity of the ego to utilize the individual's resources to form adequate solutions (to life problems) based upon previously tested judgments of reality." (Mach and Semrad, 1967: 295, parenthesis added). Reality testing refers to "The ability of the ego to distinguish between the stimuli or perceptions which arise from the outside world... and those which arise from the wishes and impulses of the id.... (Brenner, 1974:58).

2. control and regulation of the Id is achieved by the Ego in the course of early childhood. The Ego is typically referred to as the "executant" of the Id (e.g. Brenner, 1974 :37) and is conceived to be a conflict-related structure; that is, it mediates the demands of the Id and of reality made on the individual.

3. The Ego is responsible for the development of satisfactory object relations, a function greatly affected by the individual's experience in early childhood.

4. The Ego must "enlist" the co-operation of other ego functions in the course of its operation, an achievement described as synthesis or organization.

5. Primary autonomous function is a phrase referring to the fact that the human child comes into the world with an array of functions potentially adaptive to the "average expectable environment", provided that adequate environmental opportunities are presented (Hartmann et al., 1946). These functions are conceived to be conflict-free, if not drive-free, and include perception, intuition, comprehension, cognition, language, learning, intelligence, as well as certain phases of motor control.

6. A great many socially unacceptable wishes and impulses arise from activity of the Id and threaten to "break" through into consciousness. Accordingly, the Ego develops a number of mechanisms to ward them off (see Brenner, 1974: 80-96). These mechanisms represent the Ego's defence against these impulses and are largely or wholly unconscious. It may be added here that failure of the defense mechanisms has disastrous consequences for the individual, as Mach and Semrad (1967:297) explain, "When the defenses fail, there may be a breakthrough of direct instinctual expression and a regression in the ego's capacity to control motility, as exemplified in the schizophrenias." Events in the external world can resurrect repressed memories from the unconscious and as such can be viewed as precipitating factors in, rather than causes of, mental disorder in the model.

<u>The Superego:</u> The third postulated psychic structure is

the Superego which, in general, comprises the moral functions of the personality. These functions include approval or disapproval of actions, wishes, impulses, etc., critical self-appraisal, self-punishment, the demand for reparations or repentance for perceived wrong-doing as well as self-reward for actions, and/or thoughts perceived to be virtuous (Brenner, 1974: 112). In essence, the Superego represents an introjection of parental moral demands and restrictions. It develops at roughly the same time as the Ego, during the individual's phallic stage and, as in the case of the Ego, can be modified to some extent by later experience. In contrast to the Ego, however, the Superego is largely or wholly unconscious.

The Superego usually is considered to be the ally of the Ego, helping to initiate and enforce defensive activity of the Ego against the Id. There are times, however, in which the Superego is master, adding its demands to those of the Id and the external environment "to which the ego must bow and among which it must try to mediate." (Brenner, 1974:114).

Comment: The structural hypothesis outlined above provides a tripartite model of the human mind which is fully consistent with the assumptions of linearity and summativity. Any "action" on the part of a mental structure always and necessarily has a corresponding effect on the remaining structures. Further, the state of the mind at any given time is conceived merely

as the sum of the states of its constituent parts or structures.

3.4 The Theory of the Unconscious

Proponents of the psychoanalytic model postulate that the mind is comprised of two "systems", the Conscious and the Unconscious, which together account for the totality of mental activities and/or processes. The Unconscious is simply defined as "Those psychic contents and processes which are actively barred from consciousness.... (Brenner, 1974: 34, present tense added).

This notion of the Unconscious is particularly important for it rationalizes two of the explicit postulates fundamental to the psychoanalytic model. The first postulate is that of psychic determinism which states that all mental events and/or processes are always necessarily determined by mental events and/or processes which precede them (Brenner, 1974: 2-3); the Conscious and the Unconscious areas of the mind together account for all mental events. The second postulate, almost a corollary of the first, is that manifest behavior is significant only insofar as it provides the observer with evidence from which to infer stable underlying mental states (Brenner, 1974: 3, 184-189; Mischel, 1973).

Both postulates and the "theory" into which they fit are consistent with the causal assumptions of linearity and

summativity: mental events form a linear, unidirectional chain in which preceding mental events are the causes of current mental events, their effects; furthermore, the current mental state is the cumulative consequence of previous states and/or processes.

3.5 Discussion

Three conclusions may be drawn from the preceding remarks. First, the basic concepts/hypotheses of the psychoanalytic model are consistent with the causal assumptions summarized in section B. From this perspective, the following capsule characterization of the model by Peterfreund (1971: 81-82) is both apt and accurate, "Psychoanalytic theory, in general, tends to use simple, cause-and-effect, linear, one-to-one, sum-of-parts explanations, such as impulse versus defense, driving force versus counterforce, fantasy or wish versus repressive force, and so on... although modern psychoanalytic theory has increasingly recognized the complexity of mental phenomena, it does not have concepts adequate to deal with that complexity. It is struggling to describe and conceptualize highly complex organismic situations while essentially maintaining hydrodynamic concepts geared to simple cause-and-effect systems."

Second, the assumptions dealt with in section B bias the model in favor of a non-interactional analytic focus, namely, the individual. They are not well suited to the description

of the interaction between factors (see section B, above). Any model founded upon them consequently exhibits their bias. The psychoanalytic model is no exception. In it, the behavior of the individual is seen to be determined by mental states and/or processes presumed to underlie it. These states are viewed as a linear series of events in which any given event is determined by a preceding event of events. Further, the mental state of the individual at any given moment is seen as merely the sum of preceding mental states. Environmental events are not seen as significant in an of themselves but only insofar as they are transformed by the mental processes of the individual.

Finally, the choice of the individual as the analytic focus in the model determines choice of the individual as the unit of analysis. The non-interactional focus requires a non-interactional unit of analysis and the individual is the obvious, indeed the only, logical choice.

4.0 The Psychoanalytic Explanation of Neurosis: Discussion

The explanation of neurosis in the psychoanalytic model involves at least the following six basic assumptions (Mach and Semrad, 1967). The length of this list is somewhat arbitrary on my part. Depending on the level of generality or specificity desired, the number of assumptions listed would be greater or less than the number discussed below.

1. the existence of an inner conflict between drives and fears which prevents drive discharge;
2. the conflict involves disapproved sexual drives;
3. it has not been "worked through" to a realistic "solution" in which disapproved drives seeking discharge would be expelled from consciousness through the operation of the defense mechanisms (e.g. repression);
4. these defenses merely render the drives in question unconscious but do not deprive them of their power. Repressed drives tend to fight their way back into consciousness in disguises which are regarded as neurotic symptoms;
5. the mental processes whereby the repressed drives re-emerge at the level of consciousness may be augmented or precipitated by events in the external world;
6. inner conflicts of this sort lead to neurosis in adolescence or adulthood if, and only if, they are based on the same type of conflict which existed in childhood.

The above assumptions and the concepts associated with them are first of all consistent with the causal assumptions of linearity, unidirectionality and summativity; and second, they are based on the individual, who is the analytic focus

and at the same time the unit of analysis. I submit that as a consequence of these assumptions, this focus and unit of analysis, any attempt by proponents of the psychoanalytic model come to grips with the interaction between the individual and a (social) context would require a good deal of theoretical elaboration.

The attempt in psychoanalysis to account for neurosis theoretically, using the individual as the analytic focus, involves at least two logical steps: (1) the account of the current mental state of the individual, including (from the perspective of ego psychology) percieved acts, thoughts and feeling concerning significant other persons (Schatzman, 1973: 88-89), and (2) the account of the childhood experiences which are the primary determiners of that state. These two logical steps in case description constitute explanation of the case.

It will be recalled, however, that in line with the assumption of summativity, groups (i.e. social contexts) are conceived in the model as merely the sum of the individuals of which they are composed (see section A, above). His group is the social context for a given individual and that individual is part of the social context of any other group member. It follows that the number of explanatory steps to provide a complete account of neurosis in terms of the interaction between a given individual and a (social) context

is two times the number of individuals comprising the group plus double the number of dyads which constitute it; the given individual being, in every case, one part of the dyadic elements. For example, take the simplest possible group, the dyad, A and B, one of whom (A) is presumed to exhibit neurotic symptoms. Then a complete interactional account of neurosis in A in the psychoanalytic model would involve two steps (for A), plus two steps (for B), plus the effect of A on B (A→B; i.e. one step) plus the effect of B on A (B→A; one step) for a total of six logical steps.

This complexity increases when the model in question is employed to explain specific events. A psychoanalytic explanation of specific behavior patterns of an individual must be historical; it recapitulates the causal maxim, "like causes have like effects". Consequently the explanation must, at least in principle, specify the sequence of mental events which are at the root of the individual's current mental state and accordingly underlie his present behavior.

The number of steps required to specify such an historical sequence will vary, depending on the complexity of the case and on the particular observer. For purposes of the present discussion, however, the number of steps may be limited to five: one for each of the three psychosexual stages, one for the oedipal complex, as well as one for the current state of the mental apparatus.

Returning then to the example of the dyad, A and B, a

complete interactional account of neurosis in a specific individual related to one other would entail five steps (for A) plus five steps (for B) plus two steps (A→B, B→A) for a total of twelve logical steps. These figures are, of course, suggestive and are not intended to be numerically accurate. They do however underline the amount of elaboration required to provide an interactional account of neurosis in the psychoanalytic model.[5]

In conclusion, the psychoanalytic model is based on a number of causal assumptions which in the physical sciences are known to be poorly suited to description of the interaction between factors. Such assumptions bias the model in favor of a non-interactional analytic focus (the individual) and, concomitantly to a particular type of unit analysis (the individual). Consequently, the attempt by proponents of the model to come to grips with the interaction between the individual and a (social) context in their explanations of neurosis entails a good deal of theoretical elaboration.

D. The Behavioral Model

1.0 Introduction

Since its inception over sixty years ago,[6] the behavioral model of human behavior has undergone numerous modifications and revisions and there are now several types in use. The three most significant of these are the model of Dollard and Miller (1950), that of Wolpe and Eysenck (Wolpe,

et al., 1964; Eysenck, 1960) and that of Skinner (1953) (Breger and McGaugh, 1967). Dollard and Miller's model attempts to translate psychoanalytic concepts into concepts drawn from classical Hullian learning theory. The Wolpe and Eysenck model is a combination of early Hullian learning theory and various therapeutic techniques. In contrast, Skinner's model is a relatively original formulation. Of these three, the Skinnerian version is by far the most influential and is used most widely (Harre and Secord, 1972: 34; Braginsky and Braginsky, 1974: 44; Bowers, 1973).[7] Accordingly, use of the term "behavioral model" will henceforth refer to the Skinnerian version of it.

The behavioural model explains the behaviour of organisms, animal and human within the framework of the natural sciences, especially classical physics.[8] Specifically, research under the aegis of this model aims to "discover the functional relationship which prevails between measurable events in the life of the organism. The success of such a venture is gauged by the extent to which behaviour can as a result of the relationship discovered, actually be predicted and controlled," (Skinner, 1967b). In this context, behavior is defined as "any observable or measurable movement of an organism, including external movements, internal movements and their effects, and glandular secretions and their effects," (Ullmann and Krasner, 1969:

50).[9] The systematic application of this approach to the study of the behavior of organisms has yielded a series of "laws" or principles of learning the validity of which is held by proponents of the model to be universal, between and within species (Krasner and Ullmann, 1965: 3; Breland and Breland, 1961; Skinner, 1959: 90-91).[10] Learning is said to have occurred "when an individual has acquired a functional connection between an environmental stimulus and a response on his part." (Ullmann and Krasner, 1969:50).

Explicit or implicit in the foregoing discussion are a number of the distinguishing characteristics of the model, only three of which are listed below:

1. Determinism. In accordance with classical physics, a central component of the behavioral model is a Humean conception of causation (Harre and Secord, 1972: 27; Koch, 1964; Sutherland, 1973: 26) in which the terms "cause" and "effect" are replaced by "independent variable" and "dependent variable", respectively. The cause-and-effect connection is thus presented as a functional relation[11] in which different events tend to occur together in a certain order but it does not specify that one "causes" another. The advantage, according to Skinner (1953:23), of using "functional relation" in place of "cause-and-effect" is that the former is more exact. Both terms nevertheless "refer to the same factual core" (Skinner, 1953: 23), in which a behavioral response is accounted for

or controlled by an environmental event (Bowers, 1973).

When this terminology is employed the occurrence of behavior in a given individual is described and/or explained in the behavioral model in probabilistic terms (Skinner, 1953: 32), a way of speaking which appears to contradict the model's determinist base and may give the impression that human behavior is indeterminate (Sutherland, 1973: 147). Such usage is a convenience and merely reflects a lack of sufficient data. As Lundin (1969:44) explains, "Wh[illegible]e are able to realize which variables determine the response and how to manipulate the variables properly, then we are in a position to predict with absolute certainty whether or not a given response will occur. Since this is a difficult analysis to apply to humans (sic), we frequently must be satisfied with a degree of probability. The greater our control over the variables, the more accurate will be our predictions. The problem is not whether human behavior is partially free or partially determinable, but that it is a matter of knowing and controlling the conditions of which that behavior is a function." (underlining added). In short, the behavioral model seeks to provide a (micro) determinist explanation of the behavior of organisms.

2. Empiricism. In the behavioral model, scientific knowledge is held to consist only in public events which may be observed, quantified and manipulated.[12] Skinner (1953:36)

asserts that, "The events affecting an organism must be capable of description in the language of physical science." While subjective events (variously called "explanatory fictions" or "mental way stations") may intervene between a given environmental stimulus and an individual's response to that stimulus, such events, because they are essentially private, do not yield satisfactory data (Skinner, 1953:51; Skinner, 1963). For purposes of study, therefore, a linear relationship is assumed to exist between stimulus input and behavioral output (i.e. the organism is treated as if it were a "black box") (Rosen, 1972). However, as Skinner (1967b) is quick to point out, "This does not mean, of course, that the organism is conceived of as actually empty, or that continuity between input and output will not eventually be established.... but all these inner events will be accounted for with techniques of observation and measurement appropriate to the physiology of the various parts of the organism ...." Accordingly, mental events are seen in the behavioral model as epiphenomena (Locke, 1971; Farber, 1964: 6-8; Lundin, 1969:43).

As Chein (1972:126) explains, such a view of "mental events" "accepts the reality of the mind, but excludes it from any participation in causal processes, even in the realm of the mind. An idea, feeling, desire, intention... not only has no consequences with respect to bodily processes... but has no consequences with respect to any other idea, feeling,

and so forth... All continuities and determinations occur in the realm of matter, that is, in the bodily processes, in processes in the physical environment, and in the interaction between the two. Any assertion implying some consequence to the mind is merely a convenient device (justifiable only by ignorance) for referring to the as yet unknown material events within which the real causality resides." (parenthesis in original).

From this perspective, environmental stimuli are seen as approaching the status of efficient causes of behavior (Harre and Secord, 1972:27). Skinner (1967b) states, "Among these (conditions affecting behavior) there are events we call "stimuli", ... the connections between stimuli or between stimuli and behavior (are) repsonsible for the changes we call learning.... Such are the "causes" - the independent variables - in terms of which we may hope to explain behavior within the framework of a natural science." (parantheses added). Functional analysis thus consists primarily in attempting to identify and quantify those environmental stimuli which "control" behavior (Skinner, 1953:31, 129-140; Skinner, 1971: 15). In other words, explanations of behaviour are scientific if and only if they are founded upon empirical data alone.

3. Reductionism. Reductionism is formally defined as "the a priori (i.e. theoretical) exercise of the assumption

that the causal-structural determinants of a macrophenomenon are to be found in some lower-order phenomenon." (Sutherland, 1973:106; parenthesis in original).[13]

In the behavioral model this approach is demonstrated in the belief that complex behavioral sequences can neither be explained nor described as such, but must first be disassembled into the simple behaviors of which they are composed (Lundin, 1969; 115-118). This belief extends to the understanding of virtually all human behavior (Millenson, 1967: 271) and is accompanied by a heavy emphasis on the individual as the only legitimate unit of analysis (Bowers, 1973). While this is explicitly rationalized on methodological grounds (Skinner, 1959:90, 140), it is founded on the tacit ontological assumption that only the individual is real; groups, seen as merely aggregates of individuals, are abstractions (e.g. see Skinner, 1953: 302-304).

Finally, having disassembled a given behavioral sequence, it is then necessary to re-integrate it. In the behavioral model this is simply a matter of addition, for complex behaviors are seen as merely the sum of the simple behaviors of which they are composed (Lundin, 1969; 118; Millenson, 1967:271; Skinner, 1953: 224).

It should now be apparent that the environment is the analytic focus of the behavioral model and the individual is its unit of analysis. The theoretical consequences of employ-

ing this focus and this unit in conjunction with the assumptions summarized in Section B are the primary concern of the remainder of this section (D).

2.0 Mental Disorder: A General Explanation

Mental disorder is seen in the behavioral model as learned maladaptive behavior. Ullmann and Krasner (1967) explain: "Maladaptive behaviors are learned behaviors, and the development and maintenance of a maladaptive behavior is no different from the development and maintenance of any other behavior...." In the following statement, Skinner (1967b) expands on the previous comment by Ullmann and Krasner and adds a few important details, "The study of behavior, (disordered) or otherwise, remains securely in the company of the natural sciences so long as we take as our subject matter the observable activity of the organism.... We also remain within the framework of the natural sciences in explaining these observations in terms of the external forces and events which act upon the organism. Some of these are to be found in the hereditary history of the individual, including his membership in a given species as well as his personal endowment. Others arise from the physical environment, past or present." (paranthesis added; see also Lundin, 1969: 370-371).

In short, in the behavioral model mental disorder is seen as maladaptive behavior developed and maintained as a

result of environmental contingencies.

Three aspects of this explanation deserve special mention. First, in the model the traditional distinction between various forms or categories of mental disorder are regarded as specious. It is presumed that all forms of "maladaptive behavior", insofar as they can be described empirically, are explicable in terms of the principles of learning.

Second, the behavioral explanation is an historical one. This means that, at least in principle, it should be possible to specify the sequence of environmental stimuli which have led to the behavior in question as well as those stimuli which continue to maintain it.

Finally, the behavioral explanation presumes the objective specifiability of the implicit adaptive-nonadaptive distinction (see Ullmann and Krasner, 1969: 92-93).

3.0 Fundamental Concepts/Principles of the Behavioral Model

The preceding explanation is based on a number of concepts/principles fundamental to the behavioral model (The use of the slash (/) here indicates that proponents of the model use these terms interchangeably). Some knowledge of what these concepts/principles are and what is meant by them must precede assessment of the explanation. Accordingly, several of the most significant of them are summarized below.

3.1 Stimulus, Responses and the S-R Relation

In the behavioral model, the environment and the behaviour produced and/or controlled by it are represented by the concepts, stimulus and response, respectively. Although they form part of the conceptual core of the model, they are typically defined rather vaguely, if at all. Consequently, it is often difficult to know whether "stimulus" refers to any physical event to which an organism is capable of responding under given conditions or only those events to which an organism in fact responds. Similarly, "response" may be seen as either any part of the behavior emitted by an organism or, alternatively, only behavior which is connected with a stimulus in a lawful (i.e. determinant) way (Chomsky, 1964).[14]

The definition of behavior offered by Ullmann and Krasner (1969: see above, p. 71) suggests that the more general of these two sets of definitions is correct. The definition of learning offered by Breger and McGaugh (1967) - "the tendency to make a particular response in the presence of a particular stimulus" - however, suggests the narrower set of definitions to be correct. It appears that either set of definitions is correct, depending only upon whom one happens to consult.

Of the two concepts, "stimulus" receives more attention in the model than "response"; for while the latter remains

a singular notion, three different categories of stimulus are identified, as follows:

3.1.1 Reinforcing Stimulus: Conventionally symbolized as S^r, a reinforcing stimuus refers to any event which when temporally contingent upon a specific response, alters the probability of the recurrence of that response (Ullmann and Krasner, 1969: 53; Skinner, 1953: 73).[15] In essence, it is the presence of a reinforcing stimulus which establishes a functional relation between a stimulus and a response - symbolized as S-R - and embodies the behavioral notion of learning.[16]

When a stimulus increases the probability of the recurrence of a response, it is referred to as a positive reinforcing stimulus. When it decreases the probability of the recurrence of a response, it is called a negative reinforcing stimulus (Bachrach, 1967: 169).

Furthermore, three separate categories of reinforcing stimuli are identified with respect to (a) the reduction or elimination of physiological and/or psychological deprivation, and (b) the extent to which this effect is unlearned (Ullmann and Krasner, 1969: 52). Thus a stimulus which reduces physiological deprivation and whose effect is unlearned (e.g. food) is referred to as a primary reinforcing stimulus. A stimulus that has reinforcing consequences through prior service as a discriminative stimulus (see below), which

reduces psychological forms of deprivation and whose effects are learned (e.g. money) is referred to as a secondary reinforcing stimulus. Finally, a secondary reinforcing stimulus which increases the occurrence of responses other than those used during its original establishment (e.g. attention, sympathy) is referred to as a generalized reinforcing stimulus.

3.1.2. Discriminative Stimulus: Conventionally symbolized as S^d, a discriminative stimulus "marks the time or place when an operant (i.e. a spontaneously emitted behavior) will have reinforcing consequences." (Ullmann and Krasner, 1969: 54; paranthesis added) (e.g. a light or a sound just prior to or during consumption of food by a food-deprived organism). Most S^d's set the occasion for more than a single kind of response to be emitted and reinforced. Indeed, some S^d's (e.g. money) control numerous responses each of which may ultimately lead to a different primary reinforcing stimulus (e.g. food, water, sex). A behavior controlled by an S^d is called a discriminated operant.

3.1.3 Constant Stimulus: Conventionally symbolized as SS^c this refers to a stimulus which is constantly present in the environment but which is not functionally related to any specific response (e.g. random traffic noises or the ticking or humming of a clock) (Backrack, 1967: 170).

3.2 Extinction [17]

Any response which is not reinforced gradually returns to the rate of emmission observed prior to the initiation of reinforcement made contingent upon it (Skinner, 1953: 69-70). This is called extinction.

3.3. Generalization and Discrimination

Whenever a particular stimulus acquires S^d properties, then other stimuli will also take on these properties to the extent that they are similar to the original S^d. This "spread of effect" is called operant stimulus generalization (Ullmann and Krasner, 1969:55) or induction (Skinner, 1953:93).[18] This is an extremely important behavioral concept/principle, for it serves to account in part for the diversity of available human behaviors. As Skinner (1953: 93) explains, "Through the reinforcement of slightly exceptional instances of his behavior, a child learns to raise himself, to stand, to walk, to grasp objects and to move them about. Later on, through the same process, he learns to talk, to sing, to dance, to play games - in short, to exhibit the enormous repertoire characteristic of the normal adult."

Just as the concept/principle of generalization serves to explain the increase in the number of stimuli which control a specific response, so the corresponding concept/principle of discrimination explains the decrease in the number of

responses controlled by a specific stimulus.[19] This involves the differential reinforcement of certain responses (and the simultaneous extinction of others) and is another important behavioral concept/principle. Lundin (1969: 103) explains, "Were it not for discrimination...life would be a horrible chaos. We would constantly be calling people by the wrong names, eating improper kinds of food, and generally making a variety of inappropriate responses."

3.4 Shaping and Chaining

Technically, shaping and chaining both refer to methods for modifying the behavior of an organism. Shaping involves the "method of approximations", that is, the selective reinforcement of only certain responses among an array of related responses with regard to a specific predetermined goal (Lundin, 1969: 118). Chaining refers to a method wherein an increasingly long set of responses is gradually built up prior to reinforcement (Ullmann and Krasner, 1969: 62).

In the behavioral model, however, these concepts/principles have a much wider application, for they refer to processes in terms of which the totality of learned human behavior is conceptualized. Human behavior is constantly being "shaped" by the environment in accordance with the concepts/principles summarized above. Skinner (1953: 91), for example, describes this process by sculptural analogy:

"Operant conditioning shapes behavior as a sculptor shapes a lump of clay. Although at some point the sculptor seems to have produced an entirely novel object, we can always follow the process back to the undifferentiated lump, and we can make the successive stages by which we return to this condition as small as we wish. At no point does anything emerge with is very different from what preceded it.... In the same sense, an operant is not something which appears full grown in the behavior of the organism. It is the result of a continuous shaping process."

From this perspective, learned human behavior is conceived as an S-R chain. Such a chain is technically defined by Millenson (1967: 257) as, "a sequence of operant responses and discriminative stimuli such that each R produces the S^d for the next R. The successive R's in a chain are its members; the successive S^d's are its links." In the behavioral model virtually all learned human behavior is conceived of in this way. The following statement by Millenson (1967:274) concerning language behavior is an apt and, what is more important, a representative example of this conceptual set, "Not only poetry, but all human verbal (communicative) behavior is chained. The sentence is a chain of words, each spoken word being a response which produces an S^d (the sound of the word) setting the occasion for the next word. We have never distinguished the noises emitted by humans as

being fundamentally different from other human and animal operants." (see also Skinner, 1957; Lundin, 1969: 190; Ullmann and Krasner, 1969: ch. 4).[20]

3.5 Discussion

From the foregoing discussion three conclusions may be drawn. First, the concepts/principles which comprise the behavioral model are consistent with the causal assumptions of linearity, unidirectionality and summativity. All learned behavior is seen as the cumulative consequence of a linear, unidirectional series of environmental stimuli. Each simple response (R) is determined by a single preceding stimulus (S) and together they form an S-R relation. Complex behavior, conceived as a cumulative linear series of such S-R "units", is seen as merely the sum of the simple behaviors of which it is thought to be constituted.

Second, these assumptions bias the model in favor of a non-interactional analytic focus, the environment, which affects the individual and is not affected by the individual. Complex behavior is a series of environmental effects and behavior at any given point in time the sum of effects which have preceded it.

Third, the choice of the environment as the analytic focus in the model requires a non-interactional unit of analysis and the individual is the obvious, indeed the only, logical choice.

4.0 Explanation of Mental Disorder

In the behavioral model, it is held that all but the simplest forms of behavior (e.g. reflexes) are learned. Maladaptive behavior, that is, behavior conventionally seen as "disordered", is no exception. The acquisition and the maintenance of such patterns of behavior are explained in terms of a number concepts/principles such as reinforcement and generalization. In effect, taken together, these concepts/principles constitute the explanation of mental disorder in the behavioral model. As already shown, this explanation is consistent with the environment as the analytic focus, the individual as the unit of analysis as well as the causal assumptions summarized in section B.

I submit that as a consequence of these assumptions, this focus and unit, any attempt by proponents of the model to come to grips with the interaction between the individual and a (social) context necessarily involves a good deal of theoretical elaboration.

In line with the focus of the behavioral model, the theoretical explanation of any behavior deemed "non-adaptive" involves one logical step, that of specifying the environmental stimuli presumed to maintain such behavior.

It will be recalled, however, that, in accordance with the assumption of summativity, a group is seen in the model as the sum of the individuals which comprise it. The group

constitutes a social context for the individual, and that individual is part of the social context of any other group member. Skinner (1953: 304) explains as follows: "We may analyze a social episode by considering one organism at a time. Among the variables to be considered are those operated by a second organism. We then consider the behavior of the second organism, assuming the first as a source of variables. By putting the analyses together we reconstruct the episode. The account is complete if it embraces all the variables needed to account for the behavior of the individuals." Thus, with regard to the simplest possible group, the dyad, A and B, a complete interactional account of the non-adaptive behavior of A would involve the effect of A on B (A→B; one step) plus the effect of B on A (B→A; one step) for a total of two logical steps. It follows that the number of logical steps necessary to provide a complete account of "non-adaptive" behavior in terms of the interaction between the individual and a (social) context is double the number of dyads which comprise it, the individual being, in every case, one of the dyadic elements.

The attempt to employ the model in question to explain specific events involves somewhat more complexity. The behavioral explanation of specific patterns of behavior of a specific individual assumes a direct or linear relation

between antecedent environmental stimuli (i.e. "causes") and current patterns of behavior (i.e. "effects") linked by a "history of reinforcement". In other words, explanation in the behavioral model is necessarily historical. This type of explanation creates some difficulty for proponents of the behavioral model who are theoretically committed to strict empiricism but obliged to take into account the occurrence of events in the past, events which are, by definition, not observable. Indeed, proponents of the model who, for therapeutic purposes, have attempted to reconstruct an individual's "history of reinforcement" by means of the interview method (e.g. Wolpe) have been heavily critized on just these grounds (see Locke, 1971; Breger and McGaugh, 1967).

Despite the implicit paradox involved, proponents of the behavioral model nevertheless acknowledge the importance of an individual's "history of reinforcement" (e.g. Skinner, 1953: 93; Lundin, 1969: 200). It would be desirable, therefore, to specify that sequence of stimuli which presumably has determined a pattern of individual behavior now deemed to be "non-adaptive". However, attempts to do so would entail a large number of logical steps. Let these steps be collectively symbolized by "x". Then the explanation of the behavior of a specific individual would entail "x+1" logical steps when that individual's participation in a dyad is taken into account. It follows that a complete interactional account of

the non-adaptive behavior of the same individual would involve "2(x+1)" times the number of dyads in any given context.

An attempt of this sort to come to grips with the interaction between the individual and a (social) context is obviously unwieldy.

E. Conclusion

In this chapter, I have examined the causal assumptions, the analytic foci and units of analysis, the basic concepts and the explanations of mental disorder embodied in the psychoanalytic and the behavioral models. I have not drawn on an exhaustive survey of pertinent literature and do not present extensive argument; but I believe I have explained adequately the conceptual structure of these models of human behavior employed by many social scientists in their diagnostic, research and therapeutic activities and have pointed out what causal assumptions underlie them. These assumptions have been borrowed from the physical sciences of a past era and are known in those circles to be unsuitable for description of the interaction between dynamic factors. They lead social scientists to focus attention, either on the individual or the environment alone, excluding from consideration the interactions of individuals with their environments. Those who employ the psychoanalytic or the behavioral model of human behavior cannot give a satisfactory account of the inter-

action between the individual and a social context without a good deal of theoretical elaboration of these models,

FOOTNOTES

1. The psychoanalytic model, both past and present, is replete with anthropomorphisms. For a critical discussion of this aspect of the model, see Peterfreund (1971:70-74).

2. There are a number of extremely serious problems with the concept/hypothesis of psychic energy. For a thorough discussion of these problems, see Peterfreund (1971: 43-57). Bowlby (1969:40) explains one of the most important of these problems, as follows, "Action not only starts but stops. In a model that employs psychical energy the start is thought of as resulting from an accumulation of psychical energy and its ending is thought of as due to an exhaustion of that energy." Before a performance can be repeated, therefore, a fresh supply of physical energy must be accumulated. A great deal of behavior, however, is not easily explained this way."

3. This notion of the developmental primacy of early childhood has often been criticized. Harlow and Harlow (1965: 162-163) provide one of the most salient of these criticisms, as follows, "Psychoanalytic theory... ascribe(s) primary importance to the early causes and conditions whether or not these are of greatest importance. Initial traumas have a false clarity as

causative agents since they are not confounded by preceding events, whereas the role of all subsequent events is confounded by the role of these events operating during previous experience. Yet primacy in time need not, and often should not, be equated with primacy in importance." (parantheses added).

4. For an excellent critical discussion of the psychoanalytic concept/hypothesis of the ego, see Peterfreund (1971: 66-70) and Klein (1968).

5. Several attempts have been made to expand the conceptual base of the psychoanalytic model to encompass interpersonal interaction, without notable success. A case in point is the work of Sullivan (1953) concerning which Spiegel and Bell (1959) have this to say, "Sullivan (1953) in his interpersonal theory of psychiatry, attempted to develop a language descriptive of the relations between persons, but actually he seemed to deal more in the interpersonal mechanisms within individuals than with the interpersonal relations of pairs or groups of individuals."

6. The behavioral model is dated from the initial work of Watson, the "father" of behaviorism, in 1913 (Koch, 1964).

7. Braginsky and Braginsky (1974: 168) report that a

nationwide survey was recently conducted in the United States, including over 2000 graduate students and 350 faculty, all in psychology. Among other things, they were asked to respond to the question, "Which one person in psychology or a related field has produced the work you respect the most?" B. F. Skinner outpolled all other individuals mentioned, with 10% of the graduate students and 11% of the faculty choosing him.

8. This choice of "emulation-model" is ironic in the extreme, as Koch (1964:25) explains, "The typical theoretically oriented psychologist, not excluding the behaviorist, still derives sustenance and security from a theory of ... science over twenty years old and moreover, one which its originators have largely abandoned."

9. Zener (1962, cited in Koch, 1964:33) argues that this definition of behavior is both vague and extraordinarily gross in nature. He concludes, "No other science handicaps itself with the incubus of a term which so discourages analysis and encourages overgenerality of interpretation as obtained functional relations." For similar comments regarding the nature and quality of terminology in the behavioral model,

see Koch (1964); Chomsky (1964) and Harre and Secord (1972:35).

10. In a collection of some of his early work, Skinner (1959:91, 132) comments that a colleague of his, Keller Breland, was so impressed with the efficacy of conditioning techniques that he specialized in the production of behavior as a salable commodity, that is, he became a professional animal trainer. In view of this comment, the following statement by Breland and Breland (1961) is both ironic and telling, "After 14 years of continuous conditioning and observation of thousands of animals, it is our reluctant conclusion that the behavior of any species cannot adequately be understood, or controlled without knowledge of its instinctive patterns, evolutionary history, and ecological niche." (see also Bowers, 1973).

11. For a critical evaluation of the notion of "functional relation", see Bunge (1959: 91-95).

12. For a critical discussion of empiricism, see Sutherland (1973: 72).

13. For a critical discussion of reductionism, see Sutherland (1973: 37-39, 106-109).

14. Guttman (1963: 165-169) argues that in every experimental arrangement, the relevant and controlling stimulus has to be discovered and its properties

described only after a long chain of inferences. Consequently, contrary to the prevailing view among proponents of the behavioral model, the notion of "stimulus" does not refer to a directly observable entity but rather to a stimulus class and is thus, by definition, a theoretical construct. The same, argues Guttman, holds true for the notion of "response". For further critical comments regarding the nature of "stimulus" and "response", see Chomsky (1964).

15. Skinner (1953: 73) insists that, "There is nothing circular about classifying events in terms of their effects; the criterion is both empirical and objective." Nevertheless, Bowers (1973) observes that among proponents of the behavioral model there is a tendency to "glide noiselessly" from the conventional assertion of Skinner (above) to the more problematic assertion that behavior which is acquired and maintained must have been reinforced. This, he argues, constitutes a tautology for reinforcement is no longer an observable stimulus independent of the behavior it is presumed to reinforce. A case in point is the work of Ullmann and Krasner (1969) a standard behavioral textbook. After defining reinforcement in conventional terms (p. 53), they later (p. 65) make the following statement, "the

presumption is that if the frequency of emission of a behavior has been altered, some reinforcing contingency must have occurred." (underlining added). For further criticism of the notion of reinforcement, see Chomsky (1964), and Breger and McGaugh (1967).

16. The reliance by proponents of the behavioral model on the notions of "stimulus" and "response" has been extensively criticized. Koch (1964), for example, comments on the "almost incredibly undifferentiated and crass character of its major analytical tools - its exclusive end terms of analysis, and, in some formulations, the only terms of analysis: S and R." Bowers (1973) adds that proponents of the behavioral model seem to suggest that finding a reliable S-R relation is tantamount to explaining it; he states, "the very words "stimulus" and "response" insinuate that the response is a response to the stimulus conditions that generated (caused) it." (paranthesis in original).

17. For a critical discussion of the notion of extinction, see Guttman (1963: 160-161).

18. For a critical discussion of the notion of generalization, see Guttman (1963: 136-144).

19. For a critical discussion of the notion of discrimination, see Guttman (1963: 157-160).

20. For an excellent critical discussion of this conception of learned human behavior, see Powers (1973).

Chapter 4

General Systems Theory and a General Systems Theory Model

A. General Introduction

This chapter is focused on General Systems Theory (GST) and on a model derived from it. To distinguish between the two, the theory will be referred to as GST while the model will be referred to as the GST model. The format will be identical with that of Chapter 3: a brief summary of three assumptions which appear to underlie both the theory and the model; a brief overview of the theory and of the explanation of mental disorder in the model derived from it; a summary of a selected number of the basic concepts of both the theory and the model. I will then return to the explanation of mental disorder in the GST model and in the light of the assumptions which underlie it and the analytic focus and unit of analysis employed in it, assess the amount of theoretical elaboration required by its proponents to come to grips with the interaction between the individual and a (social) context.

The aims of this chapter are threefold; first, to demonstrate that the causal assumptions which I attribute to both the theory and the model do indeed apply to them; second, to demonstrate that these assumptions bias the model in favor of an interactional analytic focus, and, concomitantly, a unit of analysis; third, to demonstrate that,

as a consequence of these assumptions, this focus and unit, the attempt by proponents of the model to come to grips with the interaction between the individual and a (social) context involves relatively little theoretical elaboration.

B. Macrodeterminism

1.0 Introduction

There are several different kinds or classes of belief concerning the nature of causality. One of these, the doctrine of causal determinism (alternately called "causalism"), has already been summarized (see ch. 3, sec. 8). It refers to belief in the universal validity of the causal principle, to the exclusion of other principles of determination.

A second class of belief is known as macrodeterminism or "semicausalism" (Bunge, 1959: 28) which, broadly speaking, recognizes the validity of the causal principle in certain domains along with the unrestricted validity of other categories of lawful production in other domains. Sutherland (1973: 42) defines macrodeterminism as follows, "This is the situation which occurs when a system may be treated as deterministic at the higher levels (or at the level of the whole itself) but where the lower-order components of the system may not admit to determinacy. In the analytical domain, this may mean that the system itself is capable of prediction.... even though we cannot treat the parts of lower-order

components as deterministic."

This general doctrine has been elaborated into a series of assertions several of which have the status of assumptions in GST and the GST model. Three of these assumptions are summarized below.

2.0 The Assumption of Non-Linearity

It is held that, in principle, linear causal chains cannot be isolated from remaining sources of determination. Every event is produced by several different determiners or at least accompanied by a number of different events that are somehow connected with it. In a family, for example, it is senseless to note the behavior of any one member (e.g. hostility) as if it were independent of that of other members. Rather, one must consider the impact on that individual of the behavior of all other members and the consequences of that impact on those others. Consequently the notion that becoming is always in the form of a cause-and-effect chain (i.e. universal chaining) appears as a one-sided selection out of a rich net of causal interconnections. The notion may be valid as a first approximation of the nature of causal processes, but is virtually useless after only a few branchings and crossings within a complex causal network (Bunge, 1959: 135).

3.0 The Assumption of Bi-Directionality

It is held that within complex causal networks

the direction of effect is necessarily reciprocal, the effect of A on B reverberates back onto A; and so on. It could be argued that such a process may be broken into two simple causal chains. Such an argument, however, overlooks the mutual causal or interactional nature of such processes. The fact that many simple cases of causation are precisely those in which a unidirectional causal approximation is valid may make one forget that such cases are unusual; for on the whole, reality is feebly causal or, at least, a lot less unidirectional than proponents of causal determinism have been willing to admit (Bunge, 1959: 154).

4.0 The Assumption of Non-Summativity

It is held that in the course of interaction, both between and within networks of causes and effects, there need be no direct relation between antecedent causes and final effects. Causal factors exhibit patterned interaction such that different levels of complexity may be identified. Consequently such factors may exhibit characteristics and/or properties at higher levels which are qualitatively different from those found at lower levels, characteristics which cannot, except under most unusual circumstances, be induced from the characteristics of a factor's multiple lower-level components. In a family, for example, hostile or anti-social behavior may be dysfunctional for a certain member but may be eminently

functional for the larger family system of which he is a member. The nature of this non-summative relation between causes and effects is conventionally expressed in the form of the following two causal maxims: (a) like causes may have unlike effects, and (b) unlike causes may have like effects.

5.0 Discussion

These assumptions, which underlie GST and the GST model and which derive from the doctrine of macrodeterminism, are becoming increasingly attractive to a growing number of scientific disciplines. In the physical and biological sciences evidence has rapidly accumulated which suggests that these assumptions are well suited to the description of the interaction between factors (Bunge, 1959: 149-153). Consequently they have readily been incorporated into the assumptive base of these disciplines (Sutherland, 1973: 42). Similar trends are discernible in the social and behavioral sciences, as evidenced by the recent work of Friedrichs (1973) and Buckley (1967, 1968). If the experience of the physical sciences can be used as a guide, it may be expected that explanatory models of human behavior, including mental disorder, which are founded upon these assumptions will multiply and play an increasingly important role in the social and behavioral sciences.

C. GST and the GST Model

1.0 Introduction

As a model qua model, GST is radically

different from the two traditional models examined in Chapter 3. As Katz and Kahn (1971: 13) explains, "In some respects open-system theory is not a theory at all; it does not pretend to the specific sequence of cause and effect, the specific hypotheses and tests of hypotheses which are the basic elements of theory. Open system theory is rather a framework, a meta-theory, a model in the broadest sense of that overused term. Open-system theory is an approach and a conceptual language for understanding and describing many kinds and levels of phenomena." (see Rapoport, 1972).

From this perspective, the distinction between GST and the GST model is important; only the latter is directly comparable with the traditional models in question. Bearing this difference in mind, GST may be described as a scientific attempt to explore wholes (i.e. systems) and wholeness. Whereas traditional models seek to isolate the elements of the observed universe, working on the premise that a knowledge of these components constitutes knowledge of the whole, GST and the GST model focus not only on the components but on their interrelations as well. This involves a number of components, four of which are summarized below.

1. Identification of Isomorphy: Proponents of GST and, to a limited extent of the GST model seek to identify and describe whatever points of structural and/or functional isomorphy may exist within the natural world (Sutherland, 1973: 33).[1] Units manipulated in the various scientific

disciplines have now largely come to be reconceptualized as dynamic systems. The result, Laszlo (1972: 25) states, is "a set of systems, unclearly interrelated, postulated by different disciplines and situated at different levels of organization in nature." One of the concerns of proponents of GST and, to a limited extent, of the GST model is to identify the correspondences or isomorphisms between these diverse phenomena and attempt to reconceptualize them as systems with invariant structures and properties.

2. Construction of Second-Order Models: Another component of GST and, to a limited extent, the GST model is the attempt by their proponents to construct models of other empirical models. Laszlo (1972: 19) explains as follows, "The many sciences, and other disciplines, deal with aspects of the empirical worlds, (and) build "models" of their own particular area of experience .... If we assume that reality is merely mapped by these models and not determined by them, it follows that the models give so many perspectives of what may be a common underlying core of events. General System Theory's task is to uncover that core... (using) essentially the same procedure as model-building in the empirical sciences, taking place however on a "second-order" meta-level." (parentheses added). Increasingly, models in a wide range of disciplines are being reconceptualized in systems-theoretic terms. Consequently, one of the essential concerns

of proponents of GST is the co-ordination of these independently formulated systems models into a general theory of systems, hence the theory's name.

3. Patterns of Interaction in Systems: A third component of GST and, to a limited extent, of the GST model is the attempt by their proponents to describe and explain natural phenomena in terms of patterns of interaction between their components and of interaction between these components and components of other natural phenomena. With regard to traditional models, this perspective involves a radical conceptual shift from substantial to relational entities. Whereas traditional models posit particular entities as "ultimate furnishings of the world", proponents of GST and the GST model attempt to describe classes of entities "forming ordered structures of events" (Laszlo, 1972: 23). Natural phenomena are accordingly viewed as systems in which "subsidiary events are not separate particles but subsystems: subpatterns within the overall pattern which is the object of investigation." (Laszlo, 1972: 24).

This perspective has two important theoretical consequences. First, it rationalizes the non-reductionism which is fundamental to GST and the GST model. Bertalanffy (1967, cited in Sutherland, 1973: 35), the "father" of GST, expresses it as follows, "The properties and modes of action of higher levels (of a system) are not explicable by the

summation of the properties and modes of action of their components taken in isolation. If, however, we know the ensemble of the components and the relation existing between them, then the higher levels (of a system) are derivable from the components." (parantheses added).

The second consequence is that the perspective highlights the arbitrary status of either the "individual" or the "group" in GST and the GST model. Both are acknowledged to be abstractions definitions of which depend on the purpose and perspective of an observer (Laszlo, 1972: 24; Wynne, 1972: 89). Laszlo (1972: 24-25) writes that, "The remarkable fact is that contemporary science has effectively, though largely tacitly, abandoned the notion of isolated particular entities as units of investigation. Its concern is the discernment of ordered totalities constituting, at the basic physical level, fields, or on higher levels, systems within fields - and so on, in a complex hierarchy of organization in nature."

4. Conceptual Language: A final component of GST and, to a limited extent, the GST model is sets of concepts and principles - in short, a language - by means of which to describe and explain general characteristics and properties of systems. In the words of Sutherland (1973: 50), the "recognition of isomorphism and the generation... of analogic models of appropriate resolution ... depend largely upon the

general systems theorist's ability to arrive at a substantive vocabulary that will do for the social and behavioral sciences what the abstract vocabulary of mathematics has been able to do for the natural and physical sciences."

From the preceding discussion, it is apparent that the major concern of the proponents of the GST model is with the interaction between the elements comprising a system. It is this concern which initially sets it apart from either the psychoanalytic or the behavioral models. From this perspective, and bearing in mind the inadequacy of the individual alone in the explanation of mental disorder (see discussion in ch. 20, the analytic focus of the GST model is on interaction between the individual and a (social) context. Further, since the largest proportion of all forms of functional mental disorder occur within a family context (N. Bell, personal communication) - either the family of orientation of the family of procreation - the family system is the preferred unit of analysis. The theoretical consequences of this choice of focus and this unit, in conjunction with the causal assumptions summarized in section B, are the primary concern of the remainder of this chapter.

D. Mental Disorder: A General Explanation

In the view of proponents of the GST model, behavior traditionally viewed as disordered is seen as a manifestation of interactional processes within family systems. Consequently

the explanation of mental disorder is effectively coterminous with the explanation of behavior within family systems (Haley, 1959).

Under certain circumstances, family systems exhibit stable interactional patterns through time (i.e. morphostatis). Under different circumstances, in response to altered intra- and/or extra-systemic conditions, family systems exhibit an ability to undergo adaptive change (i.e. morphogenesis). In the GST model, both processes are explained in terms of the balance of negative (i.e. error-reduction) and positive (i.e. error-amplifying) feedback mechanisms (see section E, 7.0, below). In family systems, such mechanisms take the form of idiosyncratic rules and prohibitions established through interpersonal interaction through time. From this perspective, "disordered" behavior on the part of a family member is seen as the consequence of an error-activated family system in which such behavior is consistent with prevailing rules and prohibitions (i.e. appropriate to the social context) and serves to maintain family homeostasis and guard against the possibility of family dissolution (i.e. it is functional for the larger system in that context) (Haley, 1959).

Five aspects of this explanation deserve special mention. First, in this explanation the source of problematic behavior is located neither in the individual who exhibits such behavior nor in the context in which it occurs, but rather

in the interaction between the two. In short, unlike either of the traditional models examined in chapter 3, the explanation of mental disorder in the GST model originates from an interactional perspective.

Second, this is an ahistorical but not an atemporal explanation. This means that while temporal processes are an integral part of explanation in the model, there is seen to be no direct or linear relationship between current and past events and/or processes. Within systems, the effects of any initial 'cause' at a particular point in time are significantly diffused by the reciprocal nature of the relationship among constituent components. Such 'causal diffusion' continues as increasing numbers of interactional processes intervene through time between the initial 'cause' and some proximate state of the system. Consequently, the current state of the system can only be explained in terms of on-going interactional processes; the relationship between past and present events and/or processes is, at best, indirectly causal.

Third, this is a general explanation and accordingly does not distinguish between various forms or categories of mental disorder. Rather, it is thought that most forms of functional mental disorder (i.e. disorder not due to any known physiological/biochemical dysfunction) are ultimately explicable in terms of interactional processes within family systems.

Fourth, the explanation embodies a metaphorical conceptualization of mental disorder. In it, the designation of certain complex behavioral sequences as "disordered" is arbitrary, depending upon the context in which it occurs, the intent of the observer and the way in which the sequence is "punctuated". Thus, for example, sequences of behavior which may be seen as "disordered" with respect to societal norms may be both appropriate and adaptive within the context of a particular family system.

Finally, the family system is employed as the unit of analysis. In contrast, proponents of the psychoanalytic and the behavioral models employ as their unit the individual seen in social isolation. Taking the individual alone, however, does not explain all the variation in available data, as seen in chapter 2. From the perspective of the GST model, the family system is seen as more suitable to this explanatory task and is therefore preferred over the individual as the unit of analysis. With regard to the study of mental disorder, there are four reasons for this: (1) the family is the system with which the individual interacts most frequently and for the longest period of time, (2) the nature of that interaction is uniquely intimate and intense, (3) family systems tend to be relatively discrete, "bounded" phenomena, and (4) the largest proportion of all forms of functional mental disorder occurs within a family context.

E. Fundamental Concepts of GST

The explanation offered in section C is based on a number of concepts fundamental to GST from which the model is derived. It is necessary to have some knowledge of what these concepts are and what is meant by them before the explanation can be properly assessed. Accordingly, several of the most significant of these GST concepts are summarized below.

1.0 System[2]

The concept which, more than any other, is at the core of GST is that of system. The most complete definition of the latter is provided by Weiss (1969) as follows, "Pragmatically defined, a system is a rather circumscribed complex of relatively bounded phenomena, which, within those bounds, retain a relatively stationary pattern of structure in space or of sequential configuration in time despite a high degree of variability in the details of distribution and interrelation among its constituent units of the lower level... it responds to alterations in the environment by an adaptive redirection of its componential properties in such a way as to counter external change in the direction of optimal preservation of its systematic integrity."

As the preceding statement suggests, "system" has meaning only in relation to some specified environment. The latter is defined by Hall and Fagen (1956) as follows, "For a given system, the environment is the subset of all objects

a change in whose attributes affects the system and also those objects whose attributes are changed by the behavior of the system." The system and its enviroment together make up the universe of all things of interest in any given context. Thus, insofar as the context is defined by the concerns of the investigator, the distinction between system and environment (i.e. the definition of the system boundary) is arbitrary.

2.0 Organization

Integral to the concept of organization is the notion that the properties of any given system are not merely due to the elements of which it is composed but in addition, to the organization of those components (Rapoport, 1972). This perspective is distinctly antithetical to the reductionist notion, embodied in the traditional models examined in chapter 3, that all phenomena are "nothing but" the sum of the elements of which they are composed. This notion, however, does not take into account that the relationship among the organized components imparts to the aggregate characteristics that are not only different from but often are not found in the components alone and thus are not comparable to their unorganized aggregate (Buckley, 1967: 42).

3.0 Self-Stabilization

Systems exhibit variations in adaptive self-stabilization. This refers to system's capacity to maintain its integrity, with respect to system-defined variables and/or

parameters, despite fluctuations either in the external forces to which it is subject or among the elements of which it is composed (also known as homeostasis). This capacity of a system to return to a time-independent steady state is a defined property of systems. Insofar as fluctuations are eliminated by corresponding changes in systemic organization, systems may further be defined as adaptive entities (Weiss, 1969).

In addition, organic (i.e. living) systems exhibit a capacity for progressive development of new steady states which are more resistant to fluctuations than former ones (Laszlo, 1972: 41). They may thus be said to achieve not a true steady (i.e. static) state but rather a dynamic equilibrium (cf. Bertalanffy, 1967).

4.0 Hierarchy

Systemic stability is enhanced by the system's hierarchic structure, which is defined by Simon (1969) as follows, "a system composed of interrelated subsystems, each of the latter being, in turn, hierarchic in structure until we reach some lowest level of elementary subsystem." This structural form suggests that any given subsystem may be seen as operating at two different levels simultaneously: on one level it may be seen as a complete and autonomous system with respect to lower-order components while, on another level, it may be seen as itself only a subsystem with respect to higher

order components (Koestler, 1967: 64-67). Koestler (1967: 66) calls this dual character of systems their "holon property".

5.0 Energy and Information

All system components are interrelated by means of the exchange of energy, material or information. As one proceeds from the lower to higher level systems, there is a marked shift from energy exchange to information exchange (Hall and Fagen, 1956; J. Miller, 1955).

This difference is of the utmost importance in distinguishing between the nature and capabilities of the higher as opposed to the lower level systems (Buckley, 1967: 47-48).

Furthermore, this property of information exchange provides an ingenious criterion by which to distinguish system from environment (i.e. delineate system boundary). From this perspective, a system would be identified as any unit in relation to any other units which are to be taken into account as a consequence of the interests and objectives of the investigator (Thayer, 1972; Bateson, 1972: 317-319). In regard to communication systems, then, pathways of information exchange would be treated as indivisible and would in turn delineate the boundary of the system of interest. Bateson (1972: 318) offers the following illustrative example, "... consider a blind man with a stick. Where does the blind man's self (i.e. system) begin? At the top of the stick? At the handle of the stick? Or at some

point halfway up the stick? These questions are nonsense because the stick is a pathway along which differences are transmitted under transformation, so to draw a delimiting line (i.e. delineate the boundaries of this system) across this pathway is to cut off a part of the systemic circuit which determines the blind man's locomotion." (parentheses added).

6.0 Closed and Open Systems

Correlated with the shift from energy to information exchange is the transition from closed to open systems.

The different characteristics of closed and open systems are described by Bertalanffy (1968: 140-145). A closed system does not exchange energy with the environment. Time-independent steady states in such systems are characterized by a maximum of entropy (maximum tendency to decompose) and a minimum of free energy. Just as a closed system does not require inputs of energy, so, too, energy cannot be obtained from it; that is, it is incapable of doing work.

In contrast, an open system necessarily maintains continuous exchange of energy (in lower-order systems) or information (in higher-order systems) with its environment. It, too, can attain a time-independent steady state. In such a case, however, it is rather a dynamic equilibrium characterized by negentropy (the tendency to the elaboration and differentiation of structure) and by the availability of free energy. It is capable of doing work.

7.0 Self-Regulation

Open systems act upon their environment in such a way as to maintain their components within certain parameters, themselves variable in relation to the environment. In other words, open systems characteristically exhibit goal-seeking (alternatively, purposive or telenomic) behavior.

Such behavior involves the operation of feedback machanisms defined by Bertalanffy (1968: 46) as, "the homeostatic maintenance of a characteristic state or the seeking of a goal, based upon circular causal chains and mechanisms monitoring back infomation on deviations from the state to be maintained or the goal to be reached."

Purposive behavir, then, involves two steps, first, a "matching" of perceived environmental objects and/or events, "x", against perceived deviations of the systems internal state and/or of its behavior within system-defined parameters, "y";

second, a feedback of "mismatch" information into central control mechanisms which compare "x" and "y" and, on the basis of the difference between them, induce an increase or a reduction of the system's deviation from its parameters.[3]

From this perspective, a system must have the capacity to either remain the same (morphostasis) or to change (morpho-

genesis) in the face of varying conditions either intra- or extra-systemic. Such a capacity requires two different types of feedback, described by Maruyama (1963, 1968) as follows:

1. negative feedback: this mechanism produces a homeostatic maintenance of the characteristic state of a system by monitoring back information on deviations from that state.

2. positive feedback: this mechanism produces a progressive deviation of a system from its characteristic state by monitoring back information which increases that deviation. Specifically, it refers to "all processes of mutual causal relationships that amplify an insignificant or accidental initial kick, build up deviation and diverge from the initial condition." (Maruyama, 1963). Carried to an extreme, the operation of positive feedback can lead to a "runaway", that is, processes of change which are beyond the capacity of the system to control or correct.

Negative and positive feedback occur in all systems either simultaneously or alternatingly. Their explanatory usefulness is extraordinary, for they serve to explain how small initial causes (i.e. chance variation) can be associated with large end effects; (technically, how small initial deviations within a high range of probability may develop into a deviation of very low probability). Further, it may be inferred from the foregoing that what may appear to be fixed behavior patterns with "roots" in the past may in fact be

patterns sustained by present forces (Wender, 1968).

8.0 Discussion

Three conclusions may now be drawn. First, the concepts comprising GST, which provide the basis for the GST model, are consistent with the assumptions of non-linearity, bi-directionality and non-summativity. That is, systems composed of multiple interlocking elements comprise dense causal networks, both vertically and horizontally, in which the isolation of causal chains is, in principle, impossible. Within such causal networks, the direction of effect is necessarily reciprocal, with the action of any one element, assembly of elements (i.e. subsystem) or system directly or indirectly effecting all other elements with which it is connected. Furthermore, systems are hierarchically organized and concomitantly exhibit different levels of complexity. Corresponding to these various levels of complexity, systems may be expected to exhibit various new and qualitatively distinct properties and/or characteristics. As such, the relation between antecedent causes and final effects is indirect, at best.

Second, specifically with respect to the explanation of mental disorder, these assumptions bias the GST model in favor of an interactional focus, more specifically the interaction between the individual and a (social) context. This is especially apparent when contrasted with a focus on the individual seen in social isolation as in the traditional

models examined in chapter 3. In the GST model, the individual, except under very unusual circumstances, cannot but be seen as a component of some social system. As such, his relationship with other members of that system is necessarily reciprocal; in interacting with others, he is affected by their behavior just as they are affected by his behavior. Furthermore, interactional processes take place within a temporal context; current patterns of interpersonal interaction may bear little, if any, resemblance to patterns of interaction among the same individuals set in train in the past. From this perspective, the behavior of the individual can only be explained and/or predicted with reference to the system (context) within which the behavior is enacted and of which it is a part. Explanation of mental disorder from a systems-theoretic perspective thus involves all the individuals in any given system (context) in addition to the interaction between them.

Third, the focus on interaction by proponents of the GST model justifies the choice of family system as the preferred unit of analysis.

E. Explanation of Mental Disorder: Discussion

In the GST model, disordered behavior is seen as one consequence of family rules and prohibition established through interpersonal interaction. These highly idiosyncratic patterns of interaction develop through time as the result of

deviance-amplifying feedback and are maintained by the operation of negative feedback. Such patterns of interaction are seen in the model as crucial in the maintenance of family stability and serve to guard against family dissolution, an everpresent threat in the eyes of such family members. As has already been shown (p.109) this explanation is consistent with analytic focus on the interaction between the individual and a (social) context, with the use of the family system as the unit of analysis and with the causal assumptions summarized in section 8 of this chapter.

I submit that as a consequence of these assumptions, this focus and this unit, any attempt by proponents of the GST model to come to grips with the interaction between the individual and a (social) context requires relatively little theoretical elaboration. All that is required is specification of the nature of the interaction between the individual and the social context within which such behavior occurs. The number of logical steps then necessary to provide an interactional account of problematic behavior corresponds to the number of subsystems which comprise a given context. Thus, with regard to the simplest possible family subsystem, the dyad, A and B, an interactional account of problematic behavior in A would involve identification and description of the pattern(s) of interaction between A and B (i.e. A$\leftrightarrow$B); one

logical step. This approach to explanation differs sharply from that found in either traditional model in that (a) it focuses on neither A nor B as such but rather on the interaction between them, and (b) the reciprocal nature of such interaction sequences provides no meaningful basis for distinguishing between what is 'cause' and what is 'effect'.

This state of affairs does not change when attempting to employ the GST model to explain specific events. It will be recalled that explanation in the GST model is ahistorical but not atemporal. The notion that linear continuity exists between events and/or processes in the past and in the present is, from this perspective, untenable (for discussion, see p.109). Only the effect of observed events and/or processes can be accounted for. Consequently, these observed events are presumed to maintain those interactional processes which may, in turn, give rise to problematic behavior on the part of a member. Thus, the attempt to account for such behavior on the part of a specific individual involves the same number of logical steps as indicated above, namely, with regard to one possible family subsystem, the dyad, one logical step (i.e. A⟷B).

Thus, proponents of the GST model are able, with relatively little theoretical elaboration, to account for problematic behavior in both general and specific instances.

G. General Discussion

In this and the preceding chapter, I have examined the assumptions, the analytic foci and the units of analysis of three explanatory models of mental disorder, the psychoanalytic, the behavioral and a model derived from General Systems Theory.

As noted in chapter 3, the psychoanalytic and the behavioral models are both founded upon three causal assumptions: linearity, unidirectionality and summativity. These assumptions bias the models in favor of one or another non-interactional analytic focus (i.e. the individual or the environment) and, concomitantly, to a corresponding unit of analysis (i.e. the individual). Consequently any attempt by proponents of either model to account for interaction processes within social contexts in the explanation of mental disorder involves a good deal of theoretical elaboration.

The GST model also is based on three causal assumptions: non-linearity, bi-directionality and non-summativity. However, these are antithetical to assumptions that underlie the psychoanalytic and the behavioral models. They bias the GST model in favor of an interactional analytic focus (the interaction between the individual and a social context) and to a corresponding unit of analysis, the family system. Consequently any attempt by proponents of the model to account for such processes involves relatively little theoretical

elaboration.

In choosing between these three models, I assume that it is wise to hold theoretical elaboration to a minimum. It then follows that the GST model is to be preferred over either the psychoanalytic or the behavioral model of mental disorder.[4] This means that the analytic focus on interaction between the individual and a (social) context is to be preferred over a focus on either the individual or the environment alone and that the family system is to be preferred over the individual as a unit of analysis.

FOOTNOTES

1. In view of the influence GST appears to have had on diverse scientific disciplines, it is curious to note that it has seldom received systematic criticism. Certainly it has received nowhere near the criticism, either quantitatively or qualitatively, leveled at either the psychoanalytic or the behavioral model, even taking into account its relative youthfulness (it has had currency on the North American continent for only the last 35 years or so). However, one of its concepts to receive at least some critical attention is that of isomorphy. A representative example is the following comment by Koch (1969), "insufficient concern has been given to the strong dance that at some critical point of system-openness, boundary-weakness, or mere external complexity, the definitive analytic patterns may no longer apply ... (proponents of this approach) tend to assume that the empyrean must contain mathematical or logical methods suitable for the analysis of systems of any degree of openness or complexity. I do not think even the empyrean to be that well stocked." (parenthesis added).

2. The word "system" is from the Greek combination of, roots which mean, literally, what stands (or falls) together (Spiegel, 1971: 41ftn.).

3. Causal loops which do not involve the matching of information with system-defined parameters but correspond to

a random, reciprocal interaction between variables do not constitute true feedback mechanisms and are accordingly referred to as "pseudofeedback" (Bertalanffy, 1968: 44; Buckley, 1967: 52-53; see also Powers, 1973).

4. Ironically, there may be a trend among proponents of the psychoanalytic and the behavioral models (or at least among some of them) towards this view. In recent years, revisions of the concepts of the psychoanalytic and the behavioral models in terms of GST have been offered by Bowlby (1969), Peterfreund (1971) and Mischel (1973).

Chapter 5

A Substantive Review of the Family Systems Research Literation in Psychiatry

A. Introduction

Through the last century, mental disorder typically has been conceived as a substantial phenomenon concerning the individual alone. Consequently, theorists and diagnosticians have located it either within the individual or at least in the behavior of the individual. From the perspective of the model derived from GST, however, mental disorder is located in the interaction between family members who, together, constitute an autonomous social system. The disorder is conceived to be a relational rather than a substantial phenomenon (see above, ch. 4:109),a perspective radically different from the earlier one.

While this new orientation has by no means been universally accepted, the attention accorded it in the theoretical and empirical psychiatric literature has grown steadily. Family systems research now constitutes a major approach to the study of mental disorder (Jacob, 1975) and the systems model has virtually revolutionized psychiatric thinking.[1]

I infer from the literature that, in general, family systems research has two closely related objectives:

(1) The identification of patterns of interaction which

clearly and consistently distinguish between families of psychiatric patients of varying diagnositic categories, the underlying notion being that such patterns are in some way related to the etiology and the persistence of mental disorder.

(2) The empirical confirmation of the hypothesis that interaction between family members is determined rather than random - that is, that families are social systems. Two underlying notions are here, (a) that the family is an assemblage of units which are interdependent in such a way that change in one affects all, their coherence being such that the boundaries of the totality are maintained (N. Bell, 1972: Appendix B: 1), and (b) that disordered behavior is not a manifestation of individual psychopathology but of a disordered system of family interaction.

The present chapter seeks to ascertain the extent to which my two inferences are correct.

The following review, including close examination of 73 empirical studies, concerns family systems research in psychiatry focusing on patterns of discord, of affect, and of power as these are manifested in normal, abnormal non-schizophrenic and schizophrenic family types. These three variables and these three family types have been chosen simply because they account for the vast majority of studies

of this sort. The review is divided into three main sections, one for each of the aforementioned variables, and each section is subdivided into "early" and "recent" studies. One reason for this division is the different emphasis in early as opposed to more recent studies. Early studies (1930-1960) were exclusively concerned with either normal or schizophrenic families, while more recent studies, (1960-74) have examined all three family types, although normal families have continued to receive special attention. Another reason for this division is that it reflects a gradual shift in the literature from the early use of clinical and interview methods to the more recent emphasis on objective, observational methods within an experimental research design framework.

B. Discord

1.0 Early Studies, 1930-1960

1.1 Studies of 'Normal' Families

During the period under review, diverse aspects of the family life of 'normal' families were systematically investigated. Curiously, however, with respect to normal families discord received little direct attention (N. Bell, personal communication). Rather, the emphasis was on the development and testing of general theories of family life. Foremost among these efforts was the work of Parsons and Bales (1955), one aspect of which focuses on the patterns

and processes of role development and differentiation. The concept of "role" is defined as "that organized sector of an actor's orientation which constitutes and defines his participation in an interactional process. It involves a set of complementary expectations concerning his own actions and those of others with whom he interacts." (Parsons and Shils, 1951: 23).

This approach to a general theory of family life appears to have been founded upon the notion that role-related behavior serves, in part at least, to regulate family interaction including interpersonal discord (sic. Spiegel and Kluckholn 1954). Accordingly this section will deal indirectly with intrafamilial discord in 'normal' families by reviewing several attempts to test the theoretical assertions of Parsons and Bales (1955) concerning role differentiation within families. Before doing so, however, relevant aspects of this "theory" will be briefly summarized below.

Parsons (Parsons and Bales, 1955: 45) postulates a differentiation of roles along two axes of the nuclear family; a hierarchy or power axis (symbolized by generation) and an instrumental versus expressive function axis (symbolized by gender).

Power is defined as "the quantitative degree" of influence on the functioning of the family as a social system

(Parsons and Bales, 1955: 46). It is seen, in its social significance, as biologically given, since the helplessness of the young child precludes anything approaching equality of "power" between generations in the early stages of socialization (Parsons and Bales, 1955: 22).

The instrumental-expressive axis is described as "the differentiation of function, and hence of relative influence, in terms of "external" versus "internal" functions of the system" (Parsons and Bales, 1955: 47). The area of instrumental function concerns the relationship of the family system to its environment, its adaptation to external and internal conditions in order to maintain system equilibrium, and its attempt to establish the desired relation with external goal-objects. The area of expressive function concerns the maintenance of integrative relations between family members and the regulation of the patterns and tension levels between members.

From the intersection of these axes, it follows that the nuclear family contains four basic types of status-role (Parsons and Bales, 1955: 45) allocated according to sex and generation, with the father primarily taking the instrumental role and the mother primarily taking the expressive role.[2] Parsons (Parsons and Bales, 1955: 23) explains this allocation of roles as follows, "the bearing and early nursing of children establish a strong presumptive primacy of the

relationship of mother to the small child and this in turn establishes a presumption that the man, who is exempted from these biological functions, should specialize in the alternative instrumental direction."[3] Moreover, Zelditch (Parsons and Bales, 1955: 341-342) asserts that this allocation of status-role is a universal aspect of nuclear family systems.

While these notions involve a number of different assertions, three in particular are generally accorded primacy by critics of this aspect of the "theory", and consequently they have received the most attention: namely, the notions that family roles are differentiated into instrumental and expressive specialities; that one individual cannot efficiently assume both roles; and that the allocation of status-roles among adults is based on sex. More specifically, these notions involve the assertion, for example, that in nuclear families the father is responsible primarily for household and economic (instrumental) tasks while the mother is primarily responsible for child care and discipline[4] (i.e. expressive tasks).

In general, the results of empirical studies employing concepts relevant to the "theory" in question, six of which are reviewed below, do not support these assertions.

Studies of middle-class families, for example, indicate that role differentiation does not occur as postulated. Dyer and Urban (1958) sought support for the hypothesis that the equalitarian marriage has become institutionalized in the United States. By means of personal interviews, data were collected from a random sample of 150 single men, 150 single women, and 100 married couples. It was found that responsibility for household and economic tasks, child care and discipline were shared jointly, a finding inconsistent with relevant aspects of Parson and Bales' theory.

Similar negative findings were reported by Kligler (1954), who studied the effect of employment of married women on family behavior. The interview and questionnaire methods were each applied separately to the father and the mother in 100 selected middle-class, New York City families. In half the sample the wife worked while in the other half she was a housewife. Kligler reports that responsibility for household and economic tasks, child care and discipline were shared equally by both parents

A strikingly different picture emerged when working-class families were examined, although results were still inconsistent with relevant aspects of the "theory". Mays (1954) attempted to describe the social structure of working-class families in Liverpool, England. The city was ethnically heterogeneous but predominantly Irish.

Questionnaires were given to 40 Roman Catholic and 38 Protestant school-age boys; their parents were interviewed. It was found that the mother was responsible for household tasks and child care, that the mother and the father were each responsible for household tasks in their own separate spheres of influence and that the father was responsible for child discipline.

Similar findings have been reported by Dennis and his colleagues (1956) who studied the social structure of Ashton, Yorkshire, England, a working-class mining town of 14,000. Data were collected by means of participant observation and the interview of an unspecified number of selected informants. Their results were identical with those of Mays (1954), above.

Slightly different results were reported by Herbst (1952) who examined what goes on in a family by gathering questionnaire data on 96 children, aged 10-12, in the sixth grade of two Melbourne, Australia schools. The sample was predominantly Protestant and lower-middle or working-class. Hebst found that both the mother and the father were responsible for household tasks within their separate spheres of influence, that they were jointly responsible for economic tasks, and that the mother was responsible for child discipline. These data suggest that role differentiation does indeed occur in working-class families, but not

in the way the "theory" would predict.

Comparison of the middle- and working-class data would suggest that role differentiation per se appears to be a class-related phenomenon, a notion beyond the purview of the theory. This suggestion has received empirical support from the work of Davis and his colleagues (1941) who studied the social structure and patterns of responsibility of a town of 10,000 in the southern United States. Data were collected by means of participant observation and the interview of an unspecified number of selected informants. They found that family patterns of responsibility varied across social classes. In upper-class families the mother was responsible for household tasks and child discipline while the father was responsible for economic tasks. In middle-class families, in contrast, the mother and the father were jointly responsible for household tasks and child discipline while the father alone was responsible for economic tasks. Finally, in lower class families, the mother was responsible for household and economic tasks as well as child care and discipline.

In general, early studies of normal families do not support that aspect of the theory of Parsons and Bales concerning role differentiation and they indicate that differentiation appears to be a class related phenomenon.

1.2 Studies of Schizophrenic Families

1.2.1 Marital Discord

The majority of early studies of marital discord in families with a schizophrenic member were done without the benefit of a control group, normal or otherwise and involved no explicit definition of 'discord'. Tietze (1949), for example, studied the mothers of 25 schizophrenic patients (sex unspecified). The sample was biased insofar as the mother had to be intelligent and live close enough to the hospital to permit regular visits. In addition, the sample was predominantly Protestant and middle- or upper-middle class. Data were collected by means of repeated personal interviews. Tietze found that 13 of the mothers reported "unhappy" marriages and that 9 marriages described as "perfect" were found, on inspection, to be otherwise.

Similar findings were reported by Reichard and Tillman (1950) who examined the family background of 13 schizophrenic patients in the course of their psychotherapy treatment. Specifically, they noted the "unhappy, conflict-ridden" marriages in the family background of these patients.

Lidz and Lidz (1949) studied the hospital records of 27 male and 23 female schizophrenic patients, admitted consecutively, who at that time were less than twenty-one years of age. It was found that 61% had come from homes

marked by "marital strife" and that only 5 cases could be considered to have had an "adequate" home and family life.

Finally, the studies of Gerard and Siegel (1950) and Frazee (1953) are atypical in employing a normal control group. The latter study compared the case history records of 22 schizophrenic patients with those of 13 patients hospitalized for medical non-psychiatric reasons. The majority of patients were working-class. Frazee reports that the family background of schizophrenic patients involved considerably more discord than that of the normal controls; 69% of the schizophrenic patients had a family background characterized by "severe and chronic conflict" whereas family discord in the control group was typically mild and episodic in nature.

Gerard and Siegal (1950) compared the family background of 71 male schizophrenic patients with a control sample of 71 normal male senior high school students Data on the schizophrenic sample were obtained by interviewing individuals who had had "prolonged and intimate" contact with the patient throughout his childhood, typically one (the mother) or both parents. The sample was composed predominantly of Jewish and Italian middle- or lower-middle class families. It was found that "open marital

discord" was far more prevalent in the family background of the schizophrenic patients than in that of the normal controls.

These studies report high levels of discord as characteristic of their schizophrenic families.

1.2.2 Intra-Familial Communication

Discord has been studied indirectly by focusing on patterns of interpersonal communication in schizophrenic families. In studies of this kind it is assumed that communication regulates family interaction, of which family discord is one aspect. They uniformly do not employ control groups, normal or otherwise.

Bateson and his associates (1956) were the first to adopt this communicational approach to family research. Data were gathered from diverse sources; the direct observation of hospitalized schizophrenic patients in interaction with other family members: the examination of written and oral reports of psychotherapy with these patients; the study of recordings of psychotherapeutic interviews with patients treated by the authors and by others. The data were analyzed impressionistically. It was found that schizophrenic families exhibit a pattern of communication which the authors called "double bind"; that is, a pattern in which an individual is faced with the dilemma of being either wrong in response to parental injunctions or right

for the wrong reasons (Bateson, 1960).

It is communication in which different aspects or levels of a message to a dependent child are inconsistent. Incongruity appears in many forms of human discourse, but Bateson and his associates note that 'binding', as it occurs in families of schizophrenic patients, appears to be distinctive in the following ways: the child is threatened with punishment, whichever aspect of the message it responds to; it is not permitted to comment on the message (i.e. metacommunicate); and it is repeatedly subject to binding communication over long periods of time. In the course of such experience the child becomes increasingly confused and ultimately comes to distrust its own perception of reality (see Watzlawick et al., 1967; also see Schuham, 1967, for review).

Similar views of the interaction processes within schizophrenic families have been reported by Searles (1959), Laing (Laing and Esterson, 1964), and Haley (1959).

Searles (1959), referring to his own clinical experience and to his review of the relevant literature, has identified a factor which he suggests is typically operative in the family background of schizophrenic patients, namely, "a largely or wholly unconscious effort, on the part of some person or persons highly important in his upbringing, to drive him crazy." He goes on to list six communicational

modes of achieving this end: (1) pointing out areas of the other's personality, of which he is unaware, that are inconsistent with his ideal or actual self image (2) stimulating the other sexually in a setting in which any attempt at gratification would be disastrous, (3) simultaneously or rapidly alternating between stimulating and frustrating the other, (4) relating to the other on two unrelated levels of communication, (5) switching erratically from one emotional "wave length" to another while discussing the same topic, (6) switching topics while maintaining the same emotional wave length.

Laing and Esterson (1964) studied 11 schizophrenic families using participant observation and conjoint family therapy techniques. Data were analyzed impressionistically. They found evidence of the occurrence of the pathological modes of communication identified by Searles (1959), above. To these data Laing (1965, 1959) applied the label "mystification", referring to a manipulative style of communication, characterized by incongruity, which keeps the schizophrenic patient in a state of confusion. Consequently, Laing suggests, the patient becomes doubtful of the validity of his own thoughts and perceptions, since his experience is seldom corroborated by significant others in his family.

Finally, Haley (1959) studied the patterns of

communication in an unspecified number of schizophrenic families. Data were collected by direct observation of these families and from interviews with the patient and/or his parents. Haley reports that schizophrenic families consistently exhibited incongruity of what they said with how they qualified what they said. In other words, they tended to disqualify their own and others' statements. While some disqualification may occur in normal families, Haley suggests that such patterns of communication are distinctive of schizophrenic families. Further, he observed that these patterns of incongruity were associated with the maintenance of a set of prohibitive rules which appeared to govern the interpersonal relationships in these families.

With reference to these findings, Haley (1959) argues that schizophrenic families may be conceived as self-stabilizing systems characterized by negative feedback, which maintains the behavior of family members within certain limits which themselves are developed through interaction. Similar formulations have been presented by Bateson (1959, 1960), Laing (1965), Jackson (1957, 1965) and Weakland (1962).

These investigators appear to share a formulation of the schizophrenic family as a social system which has evolved through time into a self-reinforcing and mutually destructive network which preserves existing patterns of interaction.

This formulation supported by the empirical findings of Bateson (1961), Haley (1959), Rosenbaum (1961) and Albert (1960), would lead one to expect interaction patterns in schizophrenic families to be highly stable and resistant to change.

In general, studies of patterns of family communication indicate that schizophrenic families are characterized by systematic incongruity in communication within stable interaction patterns.

1.2.3 Family Role Relations

Discord has been studied indirectly by focusing on patterns of role relations in schizophrenic families. Based on the notion that role-related behavior serves, in part at least, to regulate family interaction (Spiegel and Kluckholn, 1954), these studies include the work of Lidz et al., 1957a, b), Wynne (Wynne et al., 1958) and Bowen (1959, 1960). They uniformly do not employ control groups.

Lidz and his associates (1957a, b), using a longitudinal research design, studied 16 schizophrenic patients, 11 males and 5 females, for periods ranging from six months to two years. The sample consisted of upper-middle class families who had the financial resources to maintain a patient in a psychiatric hospital for a long period of time. Data were collected by means of weekly interviews with family members,

by the observation of their interaction with each other and with the hospital staff, by periodic home visits and by the use of projective tests (primarily the Thematic Apperception Test, TAT). Lidz and his associate identified two characteristic types of marital relationship in the interaction of schizophrenic families. The first, the schismatic type, involved a relationship characterized by severe, chronic discord in which the "absence of any positive satisfaction from the marital relationship (excluding the children) is striking." (Lidz et al., 1957b, parenthesis in original). In the second, the skewed type, an equilibrium of sorts had been achieved between marital partners, however, "the rather serious psychopathology of one marital partner dominated the home."(Lidz et al., 1957b).

Neither type of marital relationship involved "true reciprocity", which Lidz and his associates, following Parsons and Bales (1955), assert is a prerequisite for a successful marriage (see aslo Spiegel, 1957). Reciprocity, they suggest, "requires common understanding and acceptance of each other's roles, goals, and motivation, and a reasonable sharing of cultural value orientations." (Lidz et al., 1957b). This lack of reciprocity was found to be associated with distortion of age- and sex-appropriate role behavior. Thus the "normal" parental coalition was not

maintained, the distinction between the generations was not observed and children became involved in parental conflict.

These "deviant" patterns of interpersonal relations were also found to be associated with distortion of thought and perception. "Facts (were) consistently being altered to suit emotionally determined needs." (Lidz et el., 1963: 96). The result of this "training in irrationality" was the isolation of these families from their social and cultural environments. Opportunities for reality testing that would otherwise have been afforded by contact with the social world outside the family milieu were restricted and the irrational patterns of family interaction were consequently reinforced.

Wynne and his associates (1958), as part of a long-range research programme, studied 4 schizophrenic families as well as "other families studied less thoroughly". Data were collected by means of member interviews and the direct observation of intrafamilial interaction. Wynne and his associates report that schizophrenic families were characterized by interpersonal relations that were either completely harmonious or completely conflictual. On closer examination, however, both these modes of relating were found to be entirely superficial and were, consequently, labelled "pseudomutuality" and "pseudohostility", respectively.

The purpose of these modes of relating appeared to be the maintenance at all costs of the existing family role structure. Wynne and his associates, for example, described a number of mechanisms by which deviations from the family role structure were either excluded from recognition or reinterpreted in order to maintain a facade of pseudo-mutuality. These mechanisms included family myths and legends stressing the catastrophic consequences of divergence from existing family roles (see Ferreira, 1963a); bland and indiscriminate mutual appraisal of behavior; the denial of contradictions of one's own or other's behavior; a stress on secrecy and a concomitant antipathy to prying into each other's private experience; and a formalization or ritualization of family life.

These mechanisms were deemed to be significant by Wynne and his associates because they clearly indicated the lack of reciprocity in the role structure of these families. In addition, the mechanisms were reinforced by an absence of "adequate" articulation between the family and the larger social system. Events outside the family were continuously being reinterpreted to accord with the family's idiosyncratic perspective. It was as if, Wynne and his associates suggest, the family were surrounded by a "continuous but elastic boundary" which the researchers have called the "rubber fence".

Consequently, these schizophrenic families came to be viewed by their members as not merely the center of life but rather the totality of it. Their "excessive" concern with maintaining a fixed rigid role structure was "at the expense of differentiation of the identities of the persons in the relation." The lines of demarcation that, in "normal" families, would separate people from one another and set them apart, appeared to be absent in these families such that a quality of "stuck togetherness" was noted (see Singer and Wynne, 1963).

Bowen (1959, 1960) intensively examined 5 schizophrenic families for periods ranging from six months to two and a half years. He reports that these families were characterized by an extremely rigid role structure. Parental roles in particular exhibited marked polarization (see also Brody, 1959). Both parents were described as equally "immature", but one spouse tended to deny this immaturity by functioning with a façade of "overadequacy" while the other spouse tended to accentuate it by functioning with a façade of "inadequacy".

Closer examination of these findings revealed that the "overadequate" spouse was typically the mother. This appeared to be due to her greater involvement than her husband in the rearing of a particular child. Caring for a

helpless child apparently legitimated her position of "overadequacy" and helped her control her "immaturity". It also served to compensate for the highly conflictual and emotionally distant relationship between spouses, a relationship Bowen has called one of "emotional divorce". Consequently, this particular mother-child relationship was observed to be the most emotionally active and intense relationship in the family, and it was this child who later became schizophrenic.

This child's involvement with its family, and especially its mother, was reported to have two important consequences for it. First, because its parents were unable to relate to each other directly, this child co-operated with them in becoming the focus, and thus the scapegoat, of parental conflict (see also Ackerman, 1964; Vogel and Bell, 1967). Second, this child was treated in a manner quite different from that accorded its non-schizophrenic sibling(s). This child alone was subjected to covert and contradictory demands that it become a mature and gifted individual and at the same time remain immature and helpless. Similar findings have been reported by Lu (1961, 1962).

Related findings have also been reported by several additional investigators. Dysinger (1961), for example, found that while parental decisions with regard to the non-schizophrenic child were reached quickly and easily, decisions

with regard to the schizophrenic child were only made with the greatest difficulty, if at all. Donnelly (1960) found that while mothers were inclined to leave their non-schizophrenic child alone, to leave the schizophrenic child alone caused them a great deal of anxiety. Lu (1960) has suggested that the difference between the degrees of involvement of the mother with her schizophrenic child and with her non-schizophrenic child may explain the fact that the schizophrenic child tends to be compliant and responsive whereas the non-schizophrenic child tends to be more independent and to ignore parental demands. The findings of Day and Kwiatkowska (1962) support this formulation. They found that in contrast to the schizophrenic child, the non-schizophrenic child seemed to have withdrawn from the family's intense emotional interaction and to have achieved a more detached relationship with its family.

In general, research studies indicate that schizophrenic families are characterized by a rigid and stereotyped role structure, by an absence of role reciprocity, by a failure to adequately perform age- and sex-appropriate role behavior, and by subjecting the schizophrenic child alone to contradictory parental demands.

B. 2.0 Recent Studies of Family Discord (1960-1974)

2.1 Studies of 'Normal' Families

During the period under review, several studies have examined intrafamilial discord in 'normal' families. Few of these, however, have employed an experimental research design or involved data obtained by the direct observation of family interaction processes. The results of most of these studies of 'normal' families are therefore not directly comparable to the results of reviewed studies of psychiatric populations, which possess both the experimental features I have just mentioned. However, those few studies of 'normal' families which do have these research features focus on the role differentiation theoretically discussed in Parsons and Bales (1955). Accordingly, this section will again deal indirectly with intrafamilial discord in 'normal' families, by reviewing four studies which experimentally test the various assertions of Parsons and Bales (1955) concerning role differentiation in families. No experimental study decisively confirms their assertions.

Kenkel (1957), for example, examined husband-wife decision-making in a sample of 25 couples randomly selected from the list of undergraduate married students at Iowa State College. Each couple was asked to imagine having received a gift of $300 and to discuss between themselves how they would spend it. Their discussion was subsequently analyzed in terms of measures of "influence" (i.e. whose idea(s) was finally adopted by the couple), of tasks

(i.e. Bales' Interaction Process Analysis (IPA) categories) and in terms of "expressiveness" (i.e. Bales' IPA categories). Kenkel reports that husbands performed the highest proportion of task acts and that wives engaged in most of the social-emotional activity. However, wives who were more expressive than their husbands were more influential than them. Similarly, wives who were less expressive than their husbands were less influential than them. These findings are not consistent with the assertions of Parsons and Bales (1955: 45) that family roles are differentiated into instrumental and expressive specialities.

The findings of Leik (1963) are similarly inconsistent with the relevant assertions of Parsonian "theory". In that study, 9 family triads (mother, father and daughter) participated in 27 triadic experimental group discussions. All groups were asked to reach consensus concerning issues of "some relevance to family values and goals." Three family triads were each composed of all fathers, all mothers or all daughters (the ad hoc group); three triads each had the age-sex structure of a family but were composed of strangers (the structured group); and three triads were actual families. Data were obtained by direct observation of "family" interaction and analyzed by the use of those IPA categories concerned with emotional and task "orientations" only. Instrumentality was operationally

defined as the ratio of task oriented acts to the total number of acts initiated. Similarly, emotionality was operationally defined as the ratio of emotional act, either positive or negative, to all acts initiated. Leik reports that (1) in both the ad hoc and the structured groups, mothers were less instrumental and more emotional than fathers, while (2) in the family group, mothers were as instrumental and more emotional than fathers. Leik concluded that while the "traditional" male and female roles appeared when interaction took place among strangers, these emphases tended to disappear when subjects interacted with their own families. This was especially true for instrumentality; in their own families the tendency among mothers toward task specialization disappeared.

Straus (1967) provided further relevant findings. In that study, 64 family triads, half with a teen-age son and half with a teen-age daughter, were asked to work on a specially designed task. This involved a game much like shuffleboard (i.e. it involved pushers and balls) in which the family members were asked to discover the rules of the game by playing it. Parental power was measured by directive acts to other members while expressiveness was measured by supportive statements. Straus reported that fathers were more directive of their children than mothers. However, fathers were also more supportive of children.

Significantly, Straus concluded that "the husbands (were) predominant in both the expressive and instrumental role in the conjugal interaction sphere as well as in the parent child sphere." (parenthesis added). In this study, then, it appears that father assumes both instrumental and expressive leadership of his family.

Finally, the findings of McIntire and his associates (1972) deserve mention. In that study, adolescent samples of 275 Ghanaian, 286 American, and 230 Israeli secondary school students were compared in terms of their perception of their parents' functioning in instrumental and expressive areas. Data were obtained by means of a questionnaire. Results showed a wide variability across cultural groups. For example, with respect to instrumentality, American boys perceived the father as more instrumental while American girls held a similar view of the mother. Israeli boys saw the father as somewhat more instrumental but Israeli girls saw both parents as equally instrumental. Ghanaian boys and girls saw both their parents as equally instrumental. Similar variability was observed in regard to parental expressiveness. From these findings, McIntire and his associates concluded that "Our data ... support the conclusion ... that the Parsons and Bales instrumental-expressive role model is no longer viable ...." (see also Silverman and Hill, 1967; Safilios-Rothschild and Georgiopoulos, 1970).

In general, data reviewed above, both in early and recent studies; support the following conclusion of Waxler and Mishler (1970; 274), "In real families there is little evidence of the instrumental and expressive role differentiation associated with the sex of the members, as is predicted in Parsonian theory."

2.2. Comparative Studies

A number of recent studies have compared patterns of discord in normal and schizophrenic or otherwise abnormal families. Conflict was operationally defined by these investigators in terms of various performance measures (e.g. decision time) or various measures of verbal interaction (e.g. number of disagreements). Different aspects of family discord have been examined with highly inconsistent results.

Haley (1962, 1964), for example, examined interaction in normal and abnormal family triads (i.e. mother, father, child). In the first study, (1962), 30 schizophrenic and 30 normal family triads were compared in terms of their performance in an experimental game. The game involved pressing buttons, three of which were available to each member. Each button represented a family member. When any two members pressed each other's button simultaneously, they ran up a score together which was employed as a measure of family coalition. Both samples were matched in terms of

parental education. However, the samples were poorly matched in terms of the sex of the child. Children in the normal sample were balanced as to sex and children in the schizophrenic sample were predominantly male. Haley reported that normal families had less difficulty maintaining a coalition and spent more time in coalition than schizophrenic families.

In the second study, (1964), 40 randomly selected normal family triads were compared with 40 disturbed family triads. The disturbed group comprised patients with a wide range of psychiatric diagnoses, including schizophrenia. All families were asked to discuss their responses to the Ferreira and Winter neutral questionnaire and to construct a story connecting three TAT cards.

The sequence of sounds, that is, who spoke after whom, was measured. Haley found that both groups followed repetitive patterms of interaction. However, members of normal families participated more evenly in the conversation and were less "rigid" (more random) in their speech than members of disturbed families.

Ferreira and Winter in a series of studies (Ferreira and Winter, 1965; Ferreira et al., 1966; Winter and Feeeeira, 1967; Ferreira and Winter, 1966; Ferriera and Winter, 1968), examined decision-making in 50 normal and

and 75 abnormal families. Abnormal families had been objects of a wide range of psychiatric diagnoses, including schizophrenia. The same experimental method was employed as in Haley (1964), above. It was found that normal families required less time to reach a decision, spent less time in silence, exchanged more information, agreed more and appeared to fulfill each other's need better than abnormal families did (see also Ferreira, 1963b; Winter and February, 1969; Ferreira et al., 1969; Ferreira and Winter, 1974).

Friedman and Friedman (1970) compared 40 schizophrenic and 22 normal families as to their performance of a story-telling task. The samples were matched for parental age, education, middle-class status and religion. They report that normal families expressed less overt discord than schizophrenic families did (see also Bugental et al., 1971; Farina, 1960).

Finally, Farina and Holzberg (1968) examined interpersonal discord in 74 sets of parents and their biological sons, 24 of whom had been diagnosed schizophrenic and 50 of whom had received a psychiatric diagnosis other than schizophrenia. The patients were all between the ages of 18 and 40 and were of lower-middle class origin. Each member of the family triad was separately asked how he or she would solve six hypothetical problem situations (the situation test). Members were then brought together and

asked how they would solve problems as a family. Abnormal non-schizophrenic families agreed more often than schizophrenic families (see also Hetherington et al., 1971; Fiskin and Faunce, 1970).

The preceding studies clearly suggest that normal families exhibit less intrafamilial discord than abnormal families. Several other studies, however, report contradictory findings.

Haley (1967a), for example, in a continuation of an earlier study (1964), reviewed above, examined the sequence of audible sounds in 50 normal and 50 abnormal family tetrads (i.e. mother, father, abnormal child, "well" child). As in the previous study, the families were asked to discuss their responses to Ferreira and Winter's neutral questionnaire. The resulting sounds were transmitted from throat microphones directly to an analyzer which totalled the frequency with which each member spoke after another. Both groups followed repetitive patterns but, contrary to previous reported findings, in normal and abnormal families there was equal participation of members.

In another study, Haley (1967b) examined the interaction patterns of 21 normal and 23 abnormal family triads. A limited communication network was arranged in which members had to reach agreement on items of Ferriera and Winter's neutral questionnaire while talking from separate rooms over

an intercom system. The system was arranged so that by pressing a button only two of the three persons could talk at any one time. When two members were talking, the third could neither hear nor be heard. All three members, however, had to reach agreement in order to complete the task. The sequence of audible sounds and the frequency of button pushing were recorded as part of the measure of "who speaks to whom". Both normal and abnormal groups followed repetitive patterns and there were no significant differences between groups either in the sequence of audible sounds or in the frequency pattern of button pushing.

In a third study, Haley (1968) examined the kind and amount of conflict in parents' communication with their children in 20 normal, 12 schizophrenic and 12 abnormal non-schizophrenic family triads. Parents were asked to instruct their children in a task from a separate room over an intercom system. The achievements of their children were measured. The sets of instructions were recorded and those of the schizophrenic parents were replayed to a matched sample of normal children to determine whether they could follow these instructions more successfully than the schizophrenic children. It was found that parents of schizophrenic children do not communicate in more discordant ways than normal parents, at least with respect to this kind of experimental situation.

Finally, Schulman and his associates (1962) examined several aspects of parental interaction in 20 normal and 21 abnormal family triads (i.e. father, mother, son (aged 8-12) in a playroom task. All families were middle-class. Data were obtained by direct observation and analyzed in terms of 9 behavior ratings specially constructed for this study. No differences were observed in the level of parental discord between normal and abnormal families (see also Lennard et al., 1965).

In sum, through the period 1930-1974 studies of family discord consistently report that families exhibit stable patterns of interaction and that the behavior of any one family member is intimately interrelated with the behavior of other members. However, the notion that different family types exhibit different patterns of discord is not supported by consistent evidence.

C. Affect

1.0 Early Studies, 1930-1960

Family studies in the period 1930-1960 were not explicitly concerned with affective expression; this remains true for recent studies of normal families. Data with respect to this variable have already been reviewed above and need not be repeated here. These studies (e.g. Lidz et al., 1957b; Bowen, 1959) suggest that, in general, schizophrenic families tend to exhibit a low level of positive

affect and a correspondingly high level of negative affect.

2.0 Recent Studies

Recent studies have directly examined the expression of positive and negative affect in normal and schizophrenic or otherwise abnormal families, again with equivocal results.

2.1 Positive Affect

Mishler and Waxler (1968) examined, among other things, the expression of positive affect in 44 normal, 22 "good premorbid" schizophrenic (well adjusted prior to the onset of schizophrenia), and 22 "poor premorbid" schizophrenic (poorly adjusted prior to the onset of schizophrenia) family triads. Class, ethnicity and religion were allowed to vary within each sample, with the restriction that normal and schizophrenic samples were matched on these variables. They were also matched as to sex of the patient. Members were asked to complete an opinion questionnaire individually. They were then brought together and informed of those items upon which two or more members disagreed and asked to attempt to resolve these differences through discussion (the revealed differences test, RDT). The discussion was analyzed in terms of a large number of coding categories. It was found, first, that normal mothers and fathers expressed more positive indirect affect than their schizophrenic counterpart; second, that

normal families exhibited more tension release behavior than schizophrenic families; and third, that normal families, especially mothers, exhibited more laughter than schizophrenic families.

Alexander (1973a, b) examined affective expression in normal, abnormal and delinquent families. In the first study, (1973a), 10 normal and 11 abnormal family tetrads were compared as to their performance on two discussion tasks. The abnormal families were so defined as a function of a son, aged 9-11, who was a behavior problem at school. All families were Protestant and middle-class. The families were asked (a) to discuss their answers to a list of neutral discussion topics, and (b) to resolve their differences of opinion regarding a 16-item opinion questionnaire. Alexander reported that normal families exhibited more supportive communication than abnormal families.

In the second study, (1973b), affective expression was examined in 20 normal and 22 delinquent family triads, using the same research design as above. The samples were matched for the sex of the child (male) and were all middle-class in origin. Once again it was found that normal families exhibited more supportive communication than delinquent families did (see also Riskin and Faunce, 1970; Hetherington et al., 1970).

The preceding studies suggest that normal families

exhibit more positive affect than abnormal families. Several studies, however, report contradictory findings.

Cheek (1964), for example, examined, among other things, the affective expression of 56 normal and 67 schizophrenic family triads. The schizophrenic patients, half male and half female, had all been discharged from hospital and were "convalescing" at home. In addition, the schizophrenic sample was predominantly lower class whereas the normal sample was middle-class. The samples were also dissimilar in religion and ethnicity. The RDT was employed and data were analyzed using a revised version of the IPA. No differences appeared between normal and schizophrenic families, either in the expression of solidarity or in tension release.

Similar findings have been reported by McCord and his associates (1962). In that study, the home interaction patterns of 12 schizophrenic and 12 normal family triads, matched for class, race, ethnicity, age and sex, were examined. In addition, comparable data were obtained from 129 unmatched normal family triads (i.e. mother, father, son). Five of the matched control families, however, were noted to be "somewhat deviant". No difference was found in the expression of positive affect between normal and abnormal families.

Finally, Winter and Ferreira (1967) examined the

interaction of 90 family triads: 33 normal, 33 "maladjusted", 10 schizophrenic and 12 delinquent. The groups were comparable in terms of the age and sex of the child. The families were asked to construct a story linking three TAT cards. Data were analyzed using IPA. No difference was found between normal and schizophrenic families in either the expression of positive affect or in tension release.

2.2 Negative Affect

Of the studies reviewed above, several also report significant differences in the expression of negative affect between normal and either schizophrenic or otherwise abnormal families. Mishler and Waxler (1969), for example, found that normal families expressed significantly less negative interpersonal affect than schizophrenic families. Friedman and Friedman (1970) reported that normal families exhibited less depressive mood, less anxiety-tension and less hostility than schizophrenic families. Finally, Alexander (1973a, b) reported that normal families exhibited less defensive communication than abnormal families (see also Hetherington et al., 1971; Schulman et al., 1962).

In contrast, several studies, also reviewed above, reported no significant difference in the expression of negative affect between normal and either schizophrenic or

or otherwise abnormal families. Winter and Ferreira (1967), for example, report no difference between normal and schizophrenic families in the expression of negative affect. Cheek (1964) reported no difference between normal and schizophrenic families in either overt hostility or tension. Finally, Schulman et al. (1962) reported no difference between normal and abnormal families in the level of criticism or hostility.

In general, studies of patterns of affective expression suggest that families exhibit stable (non-random) patterns of interaction and that the affective behavior of any one family member is significantly inter-related with the behavior of all other members. However, these studies have not consistently demonstrated differences of affective expression which distinguish between family types.

D. Power

1.0 Early Studies, 1930-1960

1.1 Normal Families

One aspect of the theory of Parsons and Bales (1955) concerns family power or patterns of authority and this, in turn, has heavily influenced early studies of this phenomenon. Essentially, Parson (Parsons and Bales, 1955) asserts that as the family in Western Society has

gradually moved from an institutional (i.e. traditional) to a companionate (i.e. nuclear) form (pg. 9-10, 353-354) there has been a corresponding change from father-centred to equalitarian (i.e. joint control) patterns of authority (pg. 45-47).

A large number of studies have collected data relevant to this assertion, five of which are reviewed below. However, few studies support it.

Christopherson (1956), for example, examined concepts of patriarchial authority held by the parents of 30 Mormon families having two or more children. The sample was drawn from 61 randomly selected families living within a radius of 20 miles of Salt Lake City, Utah. The spouses were interviewed together. Ninety-three per cent of the husbands and 73% of the wives favored dominance of the husband.

Johannis (1955) examined the extent of paternal power as perceived by 543 high school students (grade 10) in Tampa, Florida. Data were gathered by means of a 53-item questionnaire. Results supported the predominance of a father-centred authority pattern but indicated, too, that this appears to be a class-related phenomenon. Significantly more middle than lower-class fathers made unilateral decisions in matters concerning household and economic activities as well as child care and discipline.

Lantz (1958) examined the social structure of a working-class coal mining town in Illinois. Data were collected by diverse means: interviews with 250 non-randomly selected informants, mostly male, of the town's population of 2,300; social survey; participant observation and documentary research. Of the 70 native families closely examined, approximately 60% were mother-dominated.

Rainwater and his associates (1959) examined the lifestyles of a non-random sample of 480 working-class and 120 middle-class readers of a prominent women's magazine. Data were collected by means of interview and projective test. A wife dominated authority pattern predominated among working-class families, whereas joint control appeared to be more characteristic of middle-class families.

Finally, Wolfe (1959) examined the sources of power in the marital relationship by interviewing 656 wives living with their husbands. This represented a multi-stage probability sample of dwelling units in the Detroit Metropolitan Area. Authority patterns were distributed as follows: 25% were husband-dominated, 31% involved joint control, in 41% husband and wife had equal authority in their separate spheres of influence and 3% were wife-dominated.

In general, the findings reviewed above clearly do not support the notion of the growing predominance of an

equalitarian authority pattern. They suggest, further, that such patterns are class-related phenomena. Rollins (1963; 12), in a comprehensive review of these and similar data, has reached similar conclusions, "If the American family has moved from a patricentric to an equalitarian pattern of authority, thirty years of research (i.e. 1930-1960), scattered over a few states of the United States, has not given this trend a clear validation ... If this trend is supposed to hold for other Western European countries, the evidence from Germany, England and Australia does not support it.... While no generalization is safe with respect to family authority and social strata, however generated, the evidence appears to support the notion that lower strata tend toward non-joint authority patterns with either spouse taking the lead, the odds being slightly in favor of the female. The middle-class strata tend toward joint authority patterns, and the higher strata tend toward a non-joint authority pattern with the male taking the lead." (parenthesis added).

1.2 Schizophrenic Families

Early studies concerned with the power structure of schizophrenic families focused on the polarization of parental role relations in an attempt to identify patterns distinctive of this family type. These studies do not benefit from the use of control groups, normal or otherwise.

Kasanin and his associates (1934), for example, examined the case history records of 45 male and female schizophrenics, predominantly from a rural background, and reported that over 60% of the patients had mothers who were "overprotective and domineering".

Hadju-Grimes (1940), a Hungarian psychoanalyst, studied the early home environment of 4 female schizophrenic patients whom she has psychoanalyzed. She found that all of the patients had had, in her view, a cold, domineering, aggressive and often sadistic mother and a weak, ineffectual and peripheral father.

Comparable data have received a similar interpretation in several studies already reviewed above (e.g. Tietze, 1949; Gerard and Siegal, 1950; Lidz and Lidz, 1949; Bowen, 1959).

In the view of these investigators, schizophrenic families are characterized by a pattern of role polarization involving a dominant, overprotective, demanding mother coupled with a weak, passive, uninvolved and ineffectual father.

On the basis of additional evidence, however, other investigators have suggested that the opposite pattern, while less typical, also exists. Reichard and Tillman (1950), in a study reviewed above, found that while the dominant mother/passive father pattern applied to 76% of the patients

examined, in 15% of the cases the father was "dominant, aggressive and sadistic" while the mother was "weak, passive and inadequate".

A related but somewhat more complex picture is provided by the work of Lidz and his associates (1956). In that study, using the same research design already described above (i.e. Lidz et al., 1975b), fathers of schizophrenic patients were placed in three categories which were in turn associated with the sex of the patient. Category 1. Fathers of female schizophrenic patients: dominant individuals in severe conflict with and having unrealisitc expectations of their wives. These conflicts and expectations pre-dated the birth of the schizophrenic child, who subsequently became the focal point of the parental struggle. This is the schizmatic family type (see above). Category 2. Fathers of male schizophrenic patients: typically weak and passive, behaving like a jealous sibling. They continuously competed with their sons for the attention and affection of the mother. Consequently, they did not participate in childrearing and they interfered with their wives' efforts at mothering. This is the skewed family type (see above). Category 3. A residual category of fathers of male schizophrenic patients: completely passive nonentities in the family, who failed utterly to counteract the bizarre childrearing patterns

established by the mother. This too is the skewed family type (see above).

From the preceding selective review of empirical studies, two distinct patterns of role polarization appear to characterize schizophrenic families. The first, most commonly observed pattern involves a dominant, over-protective mother coupled with a weak, ineffectual father. The second pattern, more rarely observed, involves a domineering, distant, aloof and often cruel father coupled with a weak, inadequate mother (see also Lidz and Fleck, 1960; Fleck et al., 1963).

2.0 Recent Studies

2.1 'Normal Families

Recent Studies of the power structure of 'normal' families have been highly influenced by the "resource theory" of Blood and Wolfe (1960). This suggests that the relative power of husbands and wives in family decision-making depends upon their relative resources - education, employment, occupational status, income - in the marital relationship. The theory is based on a study of a random sample of 656 urban and 178 farm families living in the Detroit Metropolitan Area (Blood and Wolfe, 1960). Data were collected by means of an 8-item questionnaire concerning family decision-making, administered to wives only. It was found that the power of each spouse was positively correlated

with the spouse's resources. Typically, husbands were more powerful than their wives because they controlled a greater number of resources.

A number of attempts have been made to replicate these findings, with inconsistent results.

Michel (1967) compared the questionnaire data obtained from 550 randomly selected urban French families with data from Blood and Wolfe's study, reviewed above. Results supported resource theory. The family power of a husband was positively correlated with his employment and occupational status.

Lupri (1969) examined interview and questionnaire data from a random sample of 514 urban and 812 farm families in West Germany. A positive correlation between decision-making power and spouse's resources was found, especially with regard to employment.

Oppong (1970) examined survey data from a random sample of 180 married, middle-class men from Accra, Ghana. Results support resource theory: husband's decision-making power was positively correlated with his occupation and education (see also Centres et al., 1971; Lamouse, 1969; Laplae, 1968).

Buris and Zecevic (1967) report a failure to replicate findings of the preceding studies. They examined interview data from 117 randomly selected married couples from

Kragujevac, Yugoslavia and found a negative correlation between husband's occupation and education and the extent of his decision-making power.

Similar findings have been reported by Kandel and Lesser (1972), who gathered questionnaire data from the mothers of 800 American and 403 Danish high school students. In reporting their findings, the investigators state that "Marital power is neither consistently nor always positively correlated with the resources brought into the marriage by each spouse." For example, they report, in contradiction to Blood and Wolfe's interpretation, that, "The relationship of husband's occupation with marital power is very slight and curvilinear rather than positive." (see also Safilios-Rothschild,

In view of the inconsistency of these findings, resource theory has been challenged or modified more than once. Rodman (1967), for example, offers a modification with his "theory of resources in cultrual context". Briefly, it states that the distribution of marital power is the result of the comparative resources of husband and wife as well as the "cultural or subcultural expectations about the distribution of marital power". Heer (1963) notes that resource theory takes too little account of external social control, internalized norms, relative involvement, and especially the availability of attractive alternatives to

the marriage. Extrapolating from this argument of Heer, Safiolios-Rothschild (1970) suggests that a "relative love and need" theory may be more basic in explaining the distribution of marital decision-making power. She suggests, too, that "the possible contributions of other family members, especially children and in-laws", to the balance of family power should be considered.

Whether, in view of these remarks, one rejects resource theory outright or simply prefers a modified version of it, data reviewed above clearly suggest that our understanding of the power structure of normal families remains incomplete and inadequate.

2.2 Comparative Studies

Recent studies have examined the power structure of normal as compared with schizophrenic or otherwise abnormal families. Power was operationally defined by these investigators in terms of various performance measures (e.g. total talking time) or various measures of verbal interaction (e.g. who speaks first, number of interruptions). In general, these studies have yielded highly inconsistent results, with some reporting significant differences between normal and abnormal families while others report no such differences.

Bell and his associates (1960), for example, examined the distribution of power in 36 marital dyads (12 normal,

12 "good premorbid" schizophrenic, 12 "poor premorbid" schizophrenic) by means of the situational test (see above). Measures of power included who speaks first, total talking time and passive acceptance. It was found that parents of normal families shared power equally and arrived at a common solution which clearly approximated their individual choices. Parents of schizophrenic families, in contrast, exhibited the by-now-familiar polarization of roles; good premorbid couples were typically father-dominated while poor premorbid couples were typically mother-dominated. Similar findings have been reported by Garmezy and his associates (1960), using the identical research design (see also Farina, 1960).

Cheek (1965) examined the distribution of power in 56 normal and 67 schizophrenic (40 male, 27 female) family triads. Data were collected by means of the RDT and analyzed using IPA. Mothers of schizophrenic families appeared to be significantly more dominant than mothers of normal families, whereas fathers of schizophrenic families appeared to be more passive than their counterparts of normal families.

Finally, Leighton and his associates (1971) examined, among other things, the distribution of power in 8 normal and 7 clinic families each with four or five members. Clinic families were defined in terms of underachievement

and/or poor behavior control in school of a male child, aged 8-13. The samples were matched for education, number of children, and the age of the referred child. Normal families alone were paid for their participation. All families were asked to perform 9 different tasks. However, data from the first three tasks alone were used in the present study. Measures of power included total talking time, the number of utterances, the number of interruptions and the frequency of simultaneous speech. It was found that normal families were father-dominated and that the father's role was accepted by other members, whereas clinic families were mother-domianted and the mother's role was not accepted by other members (see also McCord et al., 1962).

The preceding three studies clearly suggest that the power structure of normal families is significantly different from that of abnormal families. However, two additional studies report contradictory findings.

Caputo (1963), for example, examined the distribution of power in 40 marital dyads (20 normal and 20 chronic schizophrenic). The samples were matched for education, the number of years married, the age of a son, the number of children and social class (lower-middle class). Data were obtained by means of the Osgood Semantic Differential questionnaire and from a discussion of differences of opinion on the Parental Attitudes Inventory. They were

analyzed using IPA. Results failed to support the notion that parental roles are polarized in schizophrenic families. Parents from both normal and schizophrenic families shared power.

Somewhat different results were reported by Schuham (1970), who examined the power structure in 14 normal and 14 abnormal family triads of mother, father, son. Both groups were matched for class (middle-class), religion (Protestant) and the age of the son (aged (12). Abnormal families were defined by the referral of their son to a psychiatric facility and a professional diagnosis noting beginning stages of psychotic process. Data were obtained by means of the RDT and were analyzed using IPA. A hierarchical power distribution was reported for normal families of the study and an equalitarian power distribution for abnormal families (see also Murrel and Stachowiak, 1967; Westley and Epstein, 1969, Schuham, 1972).

In general, studies of family power indicate that all families exhibit relatively stable and systematic patterns of interaction, but the studies have failed to idendify patterns which consistently distinguish between different family types.

E. Summary and Conclusion

In this chapter, I have reviewed a selected portion

of the family systems research literature focusing on patterns of discord, of affect and of power in normal, abnormal non-schizophrenic and schizophrenic family types.

Early studies of discord reported that schizophrenic families had high levels of internal discord, communicative incongruity, and markedly "deviant" parental role structure. They also reported that role differentiation in normal families appears to be a class-related phenomenon, a finding not provided for in the theory of Parsons and Bales (1955).

More recent studies suggest that (a) normal, abnormal non-schizophrenic and schizophrenic families exhibit stable and systematic patterns of interaction, (b) that variations in such patterns are not consistently associated with different family types, and (c) that evidence concerning role differentiation in normal families limits the validity of Parsons and Bales (1955) theory.

With respect to affect, early studies suggest that schizophrenic families are characterized by high levels of negative affect and correspondingly low levels of positive affect. Evidence from more recent studies, however, is equivocal. Reviewed studies indicate that normal, abnormal non-schizophrenic and schizophrenic families consistently exhibit stable and systematic patterns of affective interaction. However, these studies have not consistently demonstrated that different levels and kinds of affective

expression distinguish family types.

Finally, early studies of family power structure reported that schizophrenic families have a pattern of role polarization involving either a dominant mother and a weak father, or a dominant father and an inadequate mother. They also report that patterns of authority in normal families vary with social class of the family, a finding not provided for in the theory of Parsons and Bales (1955).

More recent studies indicate that variations in patterns of family power do not consistently differentiate between "normal" and "abnormal" family types. Their data do not consistently support "resource theory" as an explanation of how power is distributed between husband and wife.

The purpose of this review was to ascertain the extent to which the objectives of family systems research have been achieved. The objectives, by implication, are (1) the identification of patterns of interaction which reliably distinguish the diagnostic categories of families of psychiatric patients; (2) empirical confirmation of the hypothesis that interaction within families is systematic.

Evidence from systematic studies shows that families consistently exhibit stable, regular and repetitive patterns of interaction in which the behavior of any one member appears to be intimately interrelated with the behavior of

other members; it supports the notion that disordered behavior on the part of a family member is symptomatic of a disordered system of family interaction.

Specific patterns of interaction which consistently and unequivocally distinguish family types from each other have yet to be identified. Although interaction patterns have been delineated which may be significant in the etiology and the persistence of mental disorder, research data to date, remain highly inconsistent and contradictory.

In view of these findings, I must agree with the statement by Haley (1972: 36), based on his own review of the family systems literature with respect to schizophrenia, that "the evidence for a difference between a normal family and a family containing a patient is no more than indicative. This does not mean that schizophrenia (or any other psychiatric disorder) is not produced by a type of family, nor does it mean that a family with a schizophrenic member is grossly different from the average family. It does mean that sufficient reliable evidence of a difference has yet to be provided." (parenthesis added).[5]

FOOTNOTES

1. The study of mental disorder using the family system as the unit of analysis has proceeded since approximately 1930. For a brief but incisive review, see Spiegel and Bell (1964).

2. Zelditch (Parsons and Bales, 1955: ch. 6) lists the responsibilites attendant on the instrumental and the expressive roles, as follows:

   instrumental role: (1) direct responsibility for the supervision of group tasks, (2) authority to make binding managerial decisions.

   expressive role: (1) responsibility for the maintenance of solidarity and the management of tension, (2) the primary responsibility for the "care" and emotional support of children.

3. Zelditch (Parsons and Bales, 1955: 312) explains this distinction as follows: on the one hand "to be a stable focus of integration the integrative-expressive leader can't be off on adaptive instrumental errands all the time", while on the other hand, "if you are inhibiting emotions in order to perform instrumental tasks, you cannot at the same time release them in integrative-expressive behavior."

4. It should be noted that maternal responsibility for child discipline is an exception to the general rule

insofar as it involves the mother taking instrumental leadership. Parsons (Parsons and Bales, 1955: 152-153) explains as follows, "The wife, ... in spite of her more expressive role in the family as a whole ... in her role of mother of specific children must for the mother-child subsystem, take the predominantly instrumental role."

5. Other reviewers in this area have reached similar conclusions (e.g. Walters and Stinnet, 1971; Sanua, 1961; Fontana, 1966; Jacob, 1975; Frank, 1965).

Chapter 6

Evaluation of Family Systems Research

A. Introduction

As shown in my review of 73 research reports, findings concerning specific aspects of family life are both variable and inconsistent. It appears that research has not yet isolated patterns of family interaction which clearly and consistently distinguish between different family types. The present chapter will examine four factors which appear to vary systematically from study to study and seem, accordingly, to explain the inconsistency of findings of family interaction studies: differences of family diagnostic definition; family demographic characteristics; the validity or invalidity of measures employed in the assessment of particular behaviors; temporal aspects of family interaction processes. Two supplementary factors which may contribute to the inconsistency of research findings will be considered: the imprecision with which GST guides empirical operationalization and the relevance of biological and/or genetic factors to the development of mental disorder.

B. Family Diagnostic Definition

1.0 Normal Families

Virtually all reviewed studies define a normal family as one whose members had neither sought nor were seeking psychiatric or psychological treatment. This

criterion presumes the absence of psychopathology from the general population, a presumption which is not well founded for several studies provide contrary evidence.

Rennie and his associates (1957), in a large-sample prevalence survey of the non-hospitalized population of New York City found that 75% of the sample exhibited "significant" signs of pathological anxiety (see also Srole et al., 1962). The reliability of this finding may be critized on the ground that self-report measures alone were employed, but a more sophisticated study by Westley and Epstein (1969) deals with the relationship between mental health and various aspects of family life, including family power structure. Their sample of 59 middle or upper-middle class, white Protestant (WASP) families lived in the Montreal Metropolitan Area. The sample size varied with the variable under analysis because data were not available from all the families with respect to each of the variables. Data were obtained by in-depth psychiatric and sociological interviews. Assessed in accord with these data, each family was located on a 12-point mental health rating scale. Those rated 12-7 were "healthy", those rated 6 were "intermediate", and those rated 5-1 were "disturbed". Of the 43 parental dyads and the 116 children of both sexes assessed with respect to family power structure, 72% of the parents and 70% of the children fell in the disturbed category.

The findings of both Rennie et al and Westley and Epstein bring into question the aforementioned presumption of normality and provide strong evidence pointing to the presence of various levels of psychopathology in some proportion of the general population. If correct, this finding casts serious doubt on the many studies which have compared families of psychiatric and non-psychiatric samples but which have employed inadequate criteria and/or measures of mental health. By so doing, studies employing a heterogenous sample of "normal" families may contradict studies which do not employ a heterogenous sample and may consequently nullify real differences between "normal" and disturbed family types. In future family studies, the absence of psychopathology among members of "normal" control families should be ascertained by systematic research.

2.0 Schizophrenic Families

The issue of sample heterogeneity is also applicable to studies of schizophrenic families, for two reasons.

First, schizophrenia is typically defined in global terms, despite the general agreement that it is not a unitary disturbance. Available evidence consistently indicates that the personalities and clinical behavior of schizophrenic patients vary with their diagnostic classification (e.g. process versus reactive (Higgins and Peterson, 1966); paranoid versus nonparanoid (Goldstein et al., 1968); good

versus poor premorbid (Philips, 1953; Garmezy and Rodnick, 1959; also Higgins, 1964). If different diagnoses are in fact associated with different patterns of family interaction, failure to differentiate schizophrenic subgroups may result in spurious findings.

Second, available evidence suggests that psychiatric diagnosis of schizophrenia is unreliable, both cross-nationally and among any given group of qualified psychiatrists. Becker and his associates (1962), for example, had four highly skilled, specially prepared, careful accredited psychiatrists pair up to interview in succession 153 psychiatric outpatients. With regard to the 30 patients to whom the diagnosis of "schizophrenic reaction" was applied, there was an agreement rate of only 53% between raters.

The Professional Staff of the United States - United Kingdom Cross-National Project (1974) conducted a series of studies on the cross-national reliability of the diagnosis of schizophrenia based on a total of 808 patients. Patients were drawn from consecutive admissions to public mental hospitals in New York City and London. "The paramount finding... (was) that the American psychiatrists, in general, applied the diagnosis of schizophrenia to a much wider variety of clinical conditions than did their British colleagues." (paranthesis added).

These findings suggest that the absence of consensually

accepted criteria for the diagnosis of schizophrenia may seriously undermine the comparability of national and multi-national studies of family processes thought to be involved in the development of schizophrenia. They suggest further that future family research in schizophrenia should (a) consistently differentiate between schizophrenic subgroups, and (b) continue to work towards the development of consensually accepted criteria for the reliable diagnosis of schizophrenia.

C. Family Demographic Characteristics

1.0 Family Size

The 'unit' employed in family studies variously comprised parents only; triads, especially two parents and a patient-child; quadrads, that is, the parents and two children; and, in some cases, even larger units.

The variability of the unit of study immediately introduces complications in evaluating findings and severely limits the comparability of studies. Comparability is further reduced by the fact that some investigators who study quadrads study whole families of four members each while others elect to study only four members of a family and exclude other membes under a certain age. Their findings relate to families which are at different developmental stages (see Hill, 1964).

2.0 Child's Sex

The majority of reviewed studies containing male and female children summed scores across sex. The findings of Lidz and his associates (1956, 1957b), however, clearly indicate the important effect of a child's sex on emergent patterns of family interaction. Similar findings have been reported from several more recent studies (Mishler and Waxler, 1968; Cheek, 1964). Consequently, failure to separately analyze findings as functions of child's sex would tend either to increase error variance or to confound results within studies. It would, in addition, severely limit the comparability of studies in which child's sex data are analyzed separately from those studies in which such data are summed with no regard for sex difference.

3.0 Child's Age

The notion of development stages and/or processes, referred to above, reinforces the importance of child's age. Reviewed studies examined families with children aged 5 to 20 years or older.

Common sense suggests that such a range in child's age would severely limit the comparability of studies. Jacob (1974) has confirmed this in a study of family conflict and dominance. Forty-four family triads (mother, father, son) were randomly selected on the basis of their middle- or lower-class status and the presence of a son either 11 or 16 years of age. This experimental design resulted in four experimental

groups of middle-class families with an 11 or 16 year old son, and lower-class families with an 11- or a 16-year old son, with 11 families in each group. The samples were matched as to child's IQ, size of family, parental age, religion and child's birth order. Data were collected by means of a modified version of Bodians' Unrevealed Differences Test. A variety of measures were employed, including talking time, number of disagreements, and number of interruptions. It was found that (1) families with an 11 year old expressed more disagreement than did families with a 16 year old, and (2) father-son initial disagreement was more frequent in dyads with a 16-year old than in dyads with an 11-year old (see also Murrel and Stachowiak, 1967).

These findings clearly indicate that failure to regard child's age as a significant experimental variable severely limits the comparability of findings, both within and between studies.

4.0 Social Class

The majority of reviewed studies did not assess the effects of social class on family interaction patterns. While the number of family interaction studies which employ social class, defined in terms of various criteria, as an independent variable is small, available data unequivocally point to the important influence of social

class position on family interaction patterns.

Straus (1968), for example, examined a total of 173 middle- and working-class families in three cultures: 64 families from Bombay, India; 64 families from Minneapolis, Minnesota; and 45 families from San Juan, Puerto Rico. The same research design was employed as in an earlier study, (Straus, 1967), already reviewed. Middle-class families were significantly different from working-class families across all three cultures; they showed a great ability to solve problems and were less restricted in their communication and their creativity.

Similarly, Jacob (1974), in the study just reviewed above (sec. 3.0), reports significant differences between middle- and lower-class families. Middle-class families exhibited lower initial disagreement, talked more and successfully interrupted more, than lower-class families did. In addition, middle-class parents exhibited lower initial disagreement; and agreement between such parents was greater than parent-child agreement more frequently than was the case of lower-class parents (see also Lowe and Singer, 1959).

These findings clearly indicate the influence of social class on family interaction patterns. Consequently, such differences between social classes would appear to seriously limit the equivalence of studies made to date in which the social class variable is not taken into account.

5.0 Culture

Most reviewed studies have attempted to generalize concerning interaction processes from the examination of predominantly WASP families. Scant effort has been made to systematically assess the influence of culture and ethnicity on family interaction patterns. Available evidence suggests that cultural variations in family interaction patterns exist. A case in point is Haley's (1967c) cross-cultural study of patterns of family communication. Forty normal and 40 abnormal randomly selected American middle-class family triads (mother, father, son) were compared with 30 normal Japanese-American working-class family triads. The Japanese sample was heterogeneous in terms of length of residence in the United States; some families had lived in the United States for many years while others had recently immigrated from Japan. Data were collected using the same procedure as that of an earlier study, (Haley, 1964), already reviewed, above. It was found that although both groups followed repetitive patterns of "who speaks to whom", American family members participated significantly more as equals than did their Japanese counterparts (see also Opler and Singer, 1956; Opler, 1957).

This finding, while contaminated by the difference in social class between the samples, nevertheless suggests the importance of considering the influence of culture on family

interaction patterns. Further, it suggests that the failure to systematically examine this difference severely limits the generalizability of the findings from current studies.

6.0 Discussion

More generally, from the reviewed evidence and the discussion in secion C, it seems apparent that future family research should (a) attempt to account for such variables as family size, child's age and child's sex, (b) endeavor to systematically investigate the effects of family developmental processes on other on-going intrafamilial interaction processes, and (c) pay far more attention than has hitherto been the case to the effects of social class position as well as membership of ethnic and/or cultural groups on family life.

D. The Validity of Measures

The reviewed studies employ a range of different measures to assess the same constructs. Power, for example, has been measured in terms of total talking time, simultaneous speech, interruptions and passive acceptance, to name only a few types of measurement. It has always been assumed that these and other measures represent with equal validity the power construct and that therefore they are all highly correlated, one with another. Recent data, however, suggest that this assumption is almost certainly false. The poor relationship among these measures may be an extremely important contributor

to the nonreplication of results among various studies.

Turk and Bell (1972) replicated and compared nine major measures of power in assessing the power structure of 211 families randomly selected from a borough of the Toronto Metropolitan Area. It was found that the degree of association between measures was extremely low.

Similar findings have been reported by Olson and Rabunsky (1972), who replicated four major measures of power and compared them with an outcome measure in assessing the power structure of 17 couples expecting their first child. They report that none of the four measures proved to be valid and on that basis concluded, "the results of this study raise serious questions about the usefulness of the power dimension as it has been conceptualized and operationalized. Although theorists and researchers have shown considerable interest in this concept, it is still lacking in conceptual clarity and valid operational measures." (see also Hadley and Jacob, 1973; Olson, 1969).

These findings suggest that without a clearer understanding of the relationship among available measures of family power, meaningful comparisons between studies of family power may be severely limited. They suggest further the urgent need for future studies to examine the extent to which operational measures currently employed in family research (e.g. total talking time) are valid representations of their conceptual

counterparts (e.g. power).

A related issue concerns the tendency of the majority of reviewd studies to classify sequences of behavior as if each had an absolute and solitary meaning (Turk, 1974). Garfinkel (1967), discussing what he calls the "problem of indexicality", suggests that behavioral sequences do not hae fixed meanings but rather serve as indexes of a variety of things, depending on the context in which they occur and on the meanings attributed to them by the actors. Turk (1974) provides an apt example, "The statement, "I love you,"... can mean, "I care for you," "I want to have sexual intercourse with you," "I want you to be kind to me." Also it can be used in a mocking way to say, "I hate you." Any behaviour sequence can have a large number of meanings. The tendency of investigators to ignore this point may explain the poor validation of measures, for example of power, and nonreplication of the results of separate but related studies. Future family studies are therefore needed which systematically examine the ways in which meanings come to be attributed to specific behavioral sequences and the effects of such attribution on intrafamilial interaction processes.

E. The Temporal Aspects of Interaction Processes

The majority of reviewed studies examined family interaction processes at a particular date. Reviewed evidence suggests that if such processes are indeed etiologically

related to mental disorder, their effects accumulate through time (e.g. Bateson et al., 1956; Laing and Esterson, 1964; Bowen, 1959). Moreover, the work of Jacob (1974), reviewed above, clearly suggests that patterns of family interaction themselves vary through time.

Findings from these studies suggest that failure to systematically observe family interaction processes through time limites the ability of investigators to specify reliably the relationship currently thought to exist between such processes and manifestations of mental disorder. These findings imply a need for longitudinal research. Traditically, the major objections to such research are that it takes too long to obtain results, that it is too expensive, and that to maintain staff morale over extended periods of time is extremely difficult. In recent years several modifications of the traditional longitudinal design have been developed which appear to meet these objections.

R. Bell (1959-60), for example, suggests a modification in which the time required is telescoped by using matched samples of families, each of which is seen at only two points in its history. For example, one sample would be examined when the child 6 and again at age 8; another sample would be seen when the child 8 and again when it is 10; and so on. This procedure would permit investigators to draw conclusions about the nature of the full sequence of structural

changes within families and about the variables that seem to predict these changes.

An alternative modification, suggested by Maxler and Mishler (1970), following a study by Scott (1962), involves the use of a cross-sectional design within an experimental setting. The selection of groups might be ordered so that cells of the experimental design would stand for periods in the life history of a "family". A family involving parents, one child and a grandparent might represent an early point in the family life history while a later stage might be represented by a five-person family, as in the addition of a child (see also Maxler and Mishler, 1970: 284-286; Riskin and Faunce, 1972: 407-410).

Clearly, future longitudinal studies of family interaction processes merit being undertaken, possibly using the modifications of this experimental design briefly reviewed above.

F. General Systems Theory and Operationalization

GST provides an extraordinarily powerful framework for the analysis and explanation of various phenomena in diverse areas of the natural world. Its analytic tools, however - its concepts and the language by which they are expressed - constitute an extremely high level of abstraction. Consequently, although GST seems, for example, to handle available evidence with regard to mental disorder more

efficiently than other explanatory models (see ch. 4: 125), it has yet to be fully elaborated at the operational level; the necessary work to provide clarity and precision in guiding the operationalization of GST concepts in a variety of empirical domains has yet to be done. In the absence of such work, these concepts have to date been operationalized in a number of widely divergent, and often contradictory ways.

In part at least, this lack of attention to clarity and precision on the part of the proponents of GST is explicable in terms of the high priority given the development of a systems language (e.g. Sutherland, 1973: 50). Concepts such as feedback, isomorphy, system and organization are the result, but the methodological aspects of systems research have suffered. One consequence of imprecision could be contradictory findings among studies which employ GST concepts, reviewed family studies possibly being a collective case in point. It follows that much future work is needed in developing operational definitions of GST concepts as well as examining the extent to which such definitions are valid representations of their conceptual counterparts.

G. Biological and/or Genetic Factors

Reviewed family studies exhibit little or no awareness of the possible confounding effect of a range of biological and/or genetic factors. The operative assumption of such

studies appears to be that observed abnormal behavioral patterns can be explained solely in interactional terms.

To the contrary, a good deal of evidence is available suggestive of the possible involvement of biological and/or genetic factors in various forms of functional mental disorder, expecially schizophrenia (Rosenthal, 1970). Perhaps the strongest evidence in support of this possibility derives from a series of recent studies using the "Adoptee's Study Method". Essentially, this involves the psychiatric examination, as adults, of individuals born of schizophrenic mothers but adopted at a very early age (e.g, two weeks) and reared by ostensibly normal families. This group of individuals is then compared with a matched set of controls who appear to have had a similar upbringing, but whose biological parents were normal. Studies using this experimental design uniformly report a significantly greater number of individuals in the experimental group exhibiting various forms of psychopathology than in the control group (Heston, 1966; Rosenthal et al., 1968; Kety et al., 1968; Karlsson, 1966; Wender et al., 1968; for a review of these and other similar studies, see Rosenthal, 1970). These findings have been interpreted as compelling evidence in support of the role of biological and/or genetic factors in schizophrenia.

While these studies have been severely criticized for

their failure to control a variety of environmental variables (Benjamin, 1972: 36-39; Reiss and Wyatt, 1975), the findings cannot be ignored. If biological and/or genetic factors are indeed involved in mental disorder, then the failure by the investigators of reviewed family studies to control for them may have seriously confounded the findings of these studies - in effect, nullifying real differences between normal and disturbed family types. Studies are clearly needed which (a) examine patterns of family interaction holding a number of genetic and/or biological factors constant, and (b) examine the effect(s) of a number of biological and/or genetic factors while holding constant various aspects of family life. Such studies alone can provide definitive answers to questions concerning the contribution or lack of contribution of various biological and/or genetic factors to mental disorder.

H. Conclusion

Research efforts to relate various forms of mental disorder to patterns of family interaction have yielded inconsistent results. Examination in the present chapter of diverse sources of data reveals that attention to such factors as definition of different diagnostic categories, demographic characteristics, temporal processes, validity of measures and careful operationalization of GST concepts appear to be critical in the achievement of comparable, reliable and

non-spurious research data. Such factors, however, have received relatively scant attention in reviewed family psychiatric research studies, a fact which, in part at least, may account for the inconsistent results of these studies. Concerted effort to take these factors into account as part of future family systems research will, it is hoped, rectify this state of affairs.

Chapter 7

Summary and Conclusion

Mental disorder is an important problem in our society, continuously affecting the lives of millions of people directly or indirectly. Our understanding of the phenomenon, however, remains poor. This will continue to be so unless and until researchers and theorists squarely confront a number of key issues thus far given scant attention. One of these issues concerns the choice of a preferred focus of explanation, the central theme of the present paper.

A preferred focus of explanation presupposes several prior choices: that of a preferred analytic focus, that of a preferred unit of analysis and, by implication, that of a preferred explanatory model.

At present, the psychoanalytic and the behavioral models as well as a model derived from GST are pre-eminent in the psychiatric literature. The psychoanalytic and the behavioral models are distinguished by the fact that their proponents conceive of mental disorder in literal terms, provide an historical explanation of it and base this explanation on a series of largely or wholly covert causal assumptions which are poorly suited to the description of the interaction between theoretical factors and which bias the models in favor of the isolation of theoretical concepts.

Furthermore, these assumptions bias the models in favor of an isolated unit of analysis, the individual, a choice which implicitly assumes that it is possible to completely explain the behavior of the individual when the behavior is considered in social isolation.

In view of the isolated nature of the analytic focus and unit of analysis of the psychoanalytic and the behavioral models, attempts by their proponents to come directly to grips with interaction between the individual and a (social) context demand a great deal of theoretical elaboration.

In sharp contrast, GST and the model derived from it are distinguished by the fact that their proponents conceive of mental disorder in metaphorical terms, provide an ahistorical (but not atemporal) explanation of it and base this explanation on a series of largely explicit causal assumptions. These assumptions are relatively well suited to the description of the interaction between theoretical factors and, consequently, bias the model in favor of an interactional analytic focus. Furthermore, they bias the model in favor of an interactional unit of analysis such as the family system, a choice which explicitly assumes that at least with regard to mental disorder it is not possible to provide a complete explanation of the behavior of the individual without taking into account the social context

(system) within which it occurs and of which it is an integral part.

In view of the fact that the model derived from GST begins with an interactional analytic focus and unit of analysis, attempts by its proponents to come directly to grips with interaction between the individual and a (social) context involves relatively little theoretical elaboration.

On the assumption that it is wise to hold theoretical elaboration to a minimum and the discussion presented in previous chapters, I conclude that (a) GST and the model derived from it are to be preferred over either the psychoanalytic or the behavioral models; (b) the interaction between the individual and a (social) context is to be preferred over either the individual or the environment alone as an analytic focus. Based on the latter conclusion, (b), and the inadequacy of the isolated individual in the explanation of mental disorder (see chapter 2), it follows (c) that the family system is to be preferred over the individual as a unit of analysis. This choice of focus and unit together constitute a preferred interactional focus of explanation.

Implicit in the preceding conclusion is the preference for the GST (i.e. interactional) perspective as

opposed to the traditional (i.e. isolated) perspective of mental disorder based on the maintenance of minimum levels of theoretical elaboration. While this basis for selecting a preferred perspective is certainly legitimate, other, more cogent bases exist for the same purpose. Galtung (1967: 458-465), for example, lists ten dimensions useful in the evaluation of theories which seem generally applicable in assessing the perspectives in question. In this context, it is only reasonable to inquire whether the GST perspective would still be preferred over the traditional perspective if assessed in terms of the dimensions presented by Galtung. In an effort to resolve this issue, in what follows below GST and traditional perspectives of mental disorder are very briefly compared in terms of two dimensions, namely, range and fruitfulness.

By range, Galtung (p. 459) refers to "The theory from which one can deduce confirmed hypotheses that cover a wide range of phenomena that prior to the theory were considered unrelated...." Based on diverse evidence examined in chapter 2, the GST perspective scores higher on this dimension than the traditional perspective, although the extent to which hypotheses derived from either perspective have been "confirmed" remains problematic. The GST perspective alone provides a basis for explaining perceptual, cognitive and

affective processes under 'normal' and disturbed conditions as well as indicating common processes underlying diverse forms of psychopathology traditionally seen as etiologically unrelated (e.g. schizophrenia and anorexia nervosa). It also serves to highlight the extent to which individual and group (system) processes, both 'normal' and disturbed, are integrally interdependent. In terms of range, then, the GST perspective continues to be preferred over its traditional counterpart.

With reference to fruitfulness, Galtung (p. 465) states that "A theory is fruitful to the extent many, different and tenable hypotheses can be derived from it." Once again, the GST perspective scores higher on this dimension than its traditional counterpart. The GST perspective alone is flexible with regard to the level of system under consideration such that hypotheses may be derived referring to both individuals as well as groups (systems), under 'normal' or disturbed conditions, and employing variables specific to the level under consideration. Consequently, the GST perspective is extraordinarily rich in the number and diversity of hypotheses which can be derived from it. Further, hypotheses so derived are tenable insofar as they involve observable variables and/or processes such that inferential statements regarding, for

example, intrapsychic states need not be employed. For these reasons, the GST perspective appears to be more fruitful than the traditional perspective of mental disorder.

In drawing this conclusion, I do not mean to imply that the psychoanalytic and the behavioral models, representing the traditional perspective, need be rejected out of hand. On the contrary, many of their constituent concepts and much of the empirical research done under their aegis offer valuable insights. My point, rather, is that if these concepts and insights are tobe useful in understanding and explaining mental disorder, they must first be translated into GST terms, as embodied in the recent efforts of Peterfreund (1972) and Bowlby (1969) with respect to the psychoanalytic model, and Mischel (1973) with respect to the behavioral model.

In this context, it is well to recall that the fruitfulness of future research in mental disorder depends very much upon fundamental choices made in the present. In arguing in this thesis for the selection of an interactional focus of explanation and a GST perspective as opposed to traditional alternatives, I am suggesting that only these choices offer the reasonable hope of bringing the goal of cumulative research in mental disorder closer to realization.

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